IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

SIPCO LLC; and ADVANCED SENSOR TECHNOLOGY, INC., Plaintiffs, vs. THE TORO COMPANY, JLH LABS, LLC, and JASON HILL, Defendants.	Civil Action No. 08-CV-00505-TJS

ORDER

Based upon the pleadings and affidavits submitted by the parties and the arguments of counsel,

IT IS HEREBY ORDERED that Defendants' Motion for Summary Judgment on Invalidity is GRANTED:

1. There is no dispute as to any material fact and Defendants are entitled to judgment as a matter of law. Claims 1, 2, 4, 8, 9, 11, 13, 14, 16, and 27 of U.S. Patent No. 7,103,511 are invalid as obvious pursuant to 35 U.S.C. § 103. .

Dated: _____

_____
Timothy J. Savage
United States District Judge

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SIPCO LLC; and ADVANCED SENSOR TECHNOLOGY, INC., Plaintiffs, vs. THE TORO COMPANY, JLH LABS, LLC, and JASON HILL, Defendants.	Civil Action No. 08-CV-00505-TJS

DEFENDANTS' MOTION FOR
SUMMARY JUDGMENT OF INVALIDITY

Defendants, The Toro Company, JLH Labs, LLC and Jason Hill ("Defendants") move the Court for an Order granting summary judgment in Defendants' favor. Specifically, the Motion requests a declaration that United States Patent No. 7,103,511 ("the '511 Patent") claims 1, 2, 4, 8, 9, 11, 13, 14, 16, and 27 are invalid as being obvious pursuant to 35 U.S.C. § 103. The grounds for the motion, as set forth in greater detail in the accompanying Memorandum and accompanying Statement of Undisputed Facts, are that there are no material issues of fact in dispute and that Defendants are entitled to summary judgment as a matter of law.

Defendants' Motion is brought pursuant to Rule 56 of the Federal Rules of Civil Procedure and are based on the accompanying Defendants' Memorandum of Law in support of their Motion for Summary Judgment of Invalidity, Defendants' Statement of Undisputed Facts in support of their Motion for Summary Judgment of Invalidity, the accompanying declarations of Dr. Jason L. Hill, Randy H. Katz, and David A. Prange and the exhibits authenticated by and attached thereto, the arguments of counsel, and all of the files and records of the proceedings herein.

REQUEST FOR ORAL ARGUMENT

Defendants hereby request oral argument on this Motion.

Date: April 17, 2009

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DEFENDANTS' MEMORANDUM IN SUPPORT OF ITS MOTION FOR SUMMARY JUDGMENT OF INVALIDITY

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STATUTES AND RULES

Defendants, The Toro Company, JLH Labs, LLC, and Dr. Jason Hill (collectively "Defendants"), submit this Memorandum in support of their Motion for Summary Judgment on the issue of invalidity of U.S. Patent No. 7,103,511 (the " '511 patent").[1]

INTRODUCTION

In a field crowded with prior art patents and other research and scholarship, Applicant Thomas D. Petite (the "Applicant") sought patent rights for a wireless communication network claimed to monitor and control remote devices via a host computer connected to a wide area network. The Examiner disagreed that there was any innovation, and rejected all claims as an obvious improvement over the prior art.

The Board of Patent Appeals and Interferences (the "Board") reversed the Examiner, and granted the Applicant patent rights in the claims now at issue. However, the reasons supporting claim allowability were narrow. Rejecting two of three of the Applicant's arguments, the Board allowed the claims only because the prior art failed to disclose a single claim limitation – a wireless transceiver associated with a remote device that was configured to receive a sensor data signal from a remote device and transmit an original data message, and also configured to receive and repeat a message received from another wireless transceiver associated with a remote device. The prior art disclosed machine monitors that performed the former functions and repeaters that performed the repeat function. The Board's decision was made without the guidance of the recent

[1] A copy of the '511 patent is attached to the Declaration of David A. Prange ("Prange Decl.") as Exhibit A. A shortened notation is used for citation to column and line numbers in the patent, consisting of [column]:[line]. Citations are made directly to the patent.

Supreme Court decision *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S. Ct. 1727 (2007), or pertinent undisclosed prior art that features the very element that the Board found absent from the art that it considered.

The *KSR International* decision emphasized that, when evaluating the obviousness of a patent, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 1739. A flexible "common-sense" approach should be applied when determining the knowledge of one skilled in the art and such person's ability to combine elements of the prior art. *Id.* at 1740-41. Under *KSR International*'s flexible obviousness standard, the Board easily could have found it obvious to combine the repeat function of the repeaters with the machine monitors.

Regardless, any question of whether the prior art discloses all claim elements is resolved in the affirmative by an article addressing research advancements in packet radio network protocols by the Defense Advanced Research Projects Agency ("DARPA"). This article discloses the very element found lacking in the art considered by the Board – a wireless transceiver associated with a remote device configured to originate a data message and receive and repeat a data message received from another wireless transceiver associated with a remote device. When considered in light of the prior art, the claims of the '511 patent are obvious.

FACTUAL BACKGROUND

Significant Prior Art And Their Disclosures.

At the time the application that matured into the '511 patent was filed, the fields of wireless communication systems and automated monitoring systems were well developed. Indeed, the Applicant recognized that many other such systems were available to the public:

> There are a variety of systems for monitoring and/or controlling any of a number of systems and/or processes, such as, for example, manufacturing processes, inventory systems, emergency control systems, personal security systems, residential systems, and electric utility meters to name a few. In many of these "automated monitoring systems," a host computer in communication with a wide area network monitors and/or controls a plurality of remote devices arranged within a geographical region. The plurality of remote devices typically use remote sensors and controllers to monitor and respond to various system parameters to reach desired results.

'511 patent, 1:40-51 (Background of the Invention Section). These fields were also crowded with other patents and other publicly available publications. The Applicant himself disclosed over 500 references for the PTO's consideration. '511 patent, [56] (References Cited). For the purposes of this Motion three references are of primary significance to the validity of the '511 patent's claims: U.S. Patent No. 5,907,491 (hereinafter "Canada" or the " '491 patent");[2] U.S. Patent 6,141,347 ("Shaughnessy" or

[2] A copy of the '491 patent is attached to the Prange Declaration as Exhibit B. Citations are made directly to the patent.

the " '347 patent");[3] and the article *The DARPA Packet Radio Network Protocols*, by John Jubin and Janet D. Tornow, *Proceedings of the IEEE*, v. 75, n. 1, pp. 21-32 (Jan. 1987) (hereinafter "Jubin-Tornow").[4] A fourth reference, *Low Power Systems for Wireless Microsensors*, by K. Built et al., *Proceedings of the International Symposium on Low Power Electronics and Design (ISLPED)*, Monterey, California pp. 17-21 (August 12-14, 1996),[5] provides additional disclosure of a wireless communication network that employs sensors.

Canada, Shaughnessy, and Jubin-Tornow disclose all elements of the '511 patent. The references are considered in depth in the Argument section that follows. Briefly, Canada, the main reference relied upon by the Examiner during prosecution of the '511 patent, discloses a wireless communication system coupled with an automated monitoring and control system. *See* '491 patent, Abstract. The system comprises machine monitors that contain sensors and wireless transceivers, repeaters, and a command station that connects to a local area PC network. *See id*. at FIGS. 1 & 8; 4:4-57. The machine monitors transmit original data messages containing sensor data and unique identifiers to repeaters or the command station, and repeaters will retransmit received messages. *See, e.g.*, *id*. at 16:50-54; 18:8-35.

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[3] A copy of the '347 patent is attached to the Prange Declaration as Exhibit C. Citations are made directly to the patent.

[4] A copy of the Jubin-Tornow article is attached to the Prange Declaration as Exhibit D. Citations are made directly to the article.

[5] A copy of the UCLA article is attached as Exhibit E to the Prange Declaration. Citations are made directly to the article.

The Examiner also considered Shaughnessy, applying elements of Shaughnessy that were not disclosed in Canada. Shaughnessy discloses a wireless communication system that is connected to a wide area network. *See* '347 patent, FIG. 2. Shaughnessy further discloses a communication protocol, exemplary content of a data message, and customer use of the system. *Id*. at 3:49-58; 5:14-32; 6:34-48; FIG. 2.

Not considered during prosecution was Jubin-Tornow, which also discloses a wireless communication network and a connection to a wide area network. Jubin-Tornow at 21-23 (Section II & FIG. 4). The network comprises packet radios, each packet radio comprising wireless transceivers and being *configured* to do the following:

- receive information to transmit from an associated remote device (*Id*. at 22 (Section II.C & FIG. 4));
- originate a data message (*Id*. at 25 (Section IV.A);
- receive a message from another packet radio (*Id*. at 22 (Section II.C) ("Each [packet radio] is responsible for receiving a packet [(a message)] and relaying it on to a [packet radio] that is one hop closer to the final designation."); and
- repeat the received message. (*Id*.)

The data content of those messages, as defined in the claims and the Court's Markman Order, are also disclosed in Jubin-Tornow (as well as in Canada). *See id.* at 25 (Section IV.A).

'511 Patent Technology Overview.

Against this backdrop of a developed field of wireless communication networks and their application to sensing and controlling systems, the Applicant filed the application maturing to the '511 patent on August 9, 2001. '511 patent, [22]. The technology disclosed and claimed relates to a system "for monitoring and controlling a

plurality of remote devices via a host computer connected to a communication network, such as a wide area network." '511 patent, 2:32-34. Remote devices are disclosed as sensors 140 or sensor/actuators 130. *Id.* at 6:49-51.

Figure 1, reproduced below, illustrates an embodiment of the claimed system. The illustrated system is noticeably similar to Figure 1 of Canada and Figures 2 and 4 of Jubin-Tornow.[6]

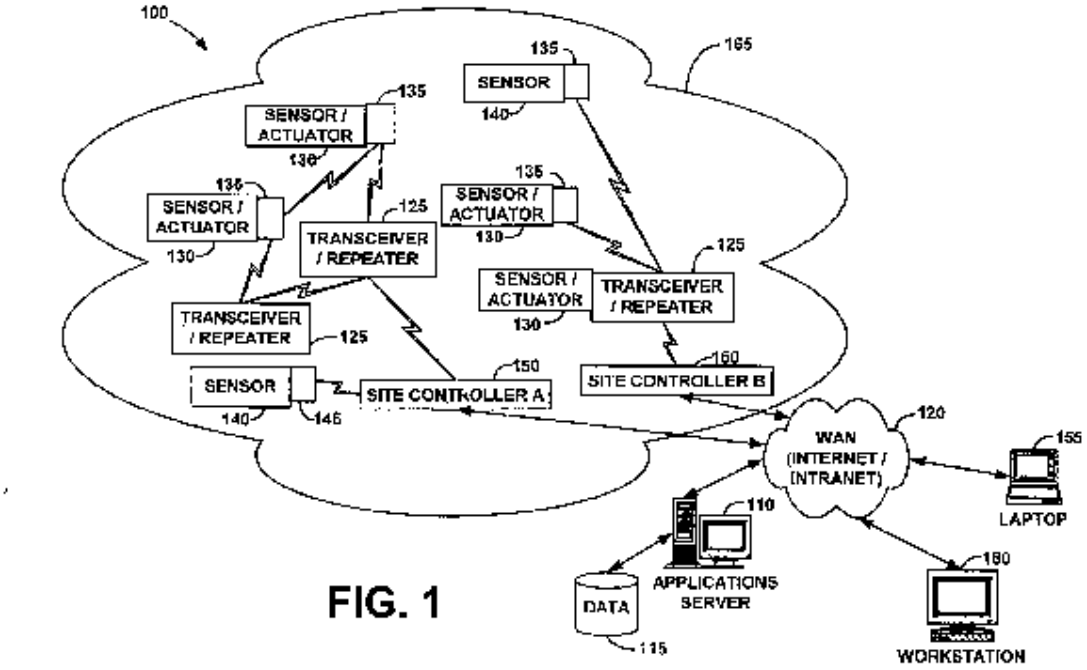

FIG. 1

As can be seen, the system "may include one or more sensors to be read and/or actuators to be controlled, ultimately through a remote applications server via a site controller." *Id.* at 2:34-37. Wireless transceivers 135 may be integrated with a sensor 140 or a sensor/actuator 130. The wireless transceivers have unique identifiers. The wireless

[6] Figure 1 of Canada and Figures 2 and 4 of Jubin-Tornow are reproduced herein at pages 19, 27, and 25, respectively.

transceivers are claimed to be configured to receive a sensor data signal from a remote device and transmit an original data message comprised of the corresponding unique identifier and sensor data signal. The wireless transceivers are further claimed to be configured to receive and repeat an original data message from another wireless transceiver. *Id.* at 2:52-64. "Additional communication devices, such as wireless repeaters, may relay information between the wireless transceivers disposed in connection with the sensors and/or actuators and the site controller." *Id.* at 2:44-47.

At issue in this obviousness analysis are four independent claims of the '511 patent. The independent claims have many common limitations. A brief discussion of claim 1 provides illustrative background.

The preamble of claim 1 claims a wireless communication network "for monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network." *Id*. at 23:22-23. Claim 1 further claims a "plurality of wireless transceivers having unique identifiers" (*id.* at 23:26-27) and prescribes two *configurations* that the wireless transceivers must have: the first configuration pertaining generally to the receipt of sensor information from remote devices and the subsequent transmission of that information; and the second configuration relating to the ability to receive and repeat transmissions from other wireless transceivers. More specifically, in the words of the claim, each of the plurality of wireless transceivers are to be *configured*:

- to receive a sensor data signal from one of the plurality of remote devices and transmit an original data message using a predefined wireless communication protocol, the original data message comprising the corresponding unique identifier and sensor data signal.

Id. at 23:22-32. And, the wireless transceivers are to be *further configured*:

- to receive the original data message transmitted by one of the other wireless transceivers and transmit a repeated data message using the predefined communication protocol, the repeated data message including the sensor data signal and the corresponding unique identifier.

Id. at 23:33-38. These two separate configurations are recited in all of the independent claims.

A site controller is recited in independent claims 1, 13 and 27 and, as described more fully below, also recited with means-plus-function language in independent claim 8. Figure 1, reproduced above, shows site controller 150 that, as can be seen, resides between the wireless transceivers and/or repeaters on the one hand, and a wide area network on the other.

Claimed only in the dependent claims are repeaters. Dependent claims 2 and 14 provide for a "plurality of repeaters having unique identifiers," and dependent claim 9 similarly provides for a "plurality of 'repeating means' having unique identifiers." As the name implies, repeaters repeat messages. Specifically, they are configured to "transmit a repeated data message" that includes "the sensor data signal from the original data message and the unique identifier corresponding to the repeater." *Id.* at 23:53-57.

Prosecution History.

The prosecution history includes an appeal to the Board of Patent Appeals and Interferences, and it reveals that the eventual allowance of the claims of the '511 patent did not come easily in light of the similarity between the claims and the disclosed prior art. In part, the Examiner rejected many claims under 35 U.S.C. § 103(a) as unpatentable

over Canada in view of Shaughnessy. For independent claims 1, 8, and 13, the Examiner found that Canada disclosed the large majority of claim limitations, and relied on Shaughnessy for only two elements: (1) a connection to a wide area network to allow monitoring and controlling from a remote host; and (2) a predefined communication protocol. (Prange Decl. Ex. F (Final Office Action at 2-240, 2-242, 2-246).)[7] The Examiner rejected all claims.

The Applicant appealed the final rejection to the Board and presented three arguments to establish that all claims were nonobvious. First, the Applicant argued that there was no motivation to combine Canada with Shaughnessy. (*Id*. (Appeal Br. at 2-387 through 2-392).) Second, the Applicant argued that Canada did not disclose the control of remote devices via a host computer connected to a wide area network in addition to the monitoring of the remote devices. (*Id*. (Appeal Br. at 2-392 through 2-2-394).) Third, and unlike the prior art, the Applicant argued that Canada did not disclose a wireless transceiver associated with a remote device configured to not only send an original data message, but also receive an original data message transmitted by one of the other wireless transceivers (associated with a remote device) and transmit a repeated data message. (*Id*. (Appeal Br. at 2-394 through 2-396).) The Applicant asserted these

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[7] For claim 27, the Examiner relied on Shaughnessy for these two limitations, and for the additional limitation of "multiple customer or organization system access." (Prange Decl. Ex. F (Final Office Action at 2-253).)

Exhibit F of the Prange Declaration consists of excerpts of the file history of the '511 patent. The file history in its entirety was submitted as Exhibit 2 to the Declaration of David A. Prange dated September 25, 2008, filed with Defendants' *Markman* submissions on September 26, 2008.

arguments for all the independent claims. (*Id*. at (Appeal Br. at 2-396 though 2-406 (claim 8), 2-406 though 2-416 (claim 13), 2-426 through 2-435 (claim 27)).) Further, the Applicant implicitly conceded that the Examiner's rejections of the dependent claims if the independent claims were found obvious, as the Applicant made no separate and distinct arguments targeted only to the patentability of the dependent claims.

Although the appeal resulted in the claims being allowed, the Board's decision sets forth a very limited basis for allowability. The Board categorically rejected the Applicant's argument that there was no motivation to combine Canada and Shaughnessy. (*Id*. (Dec. on Appeal at 2-513).) After noting that Canada disclosed a system used for monitoring in a localized area, the Board observed that Shaughnessy disclosed a plurality of local area networks connected to a server through a wide area network. (*Id*. (Dec. on Appeal at 2-512).) The Board found that one of skill in the art would have combined Canada with Shaughnessy so that the system of Canada could be connected to one or more manufacturing plants or to a server over a wide area network. (*Id*. (Dec. on Appeal at 2-513).) The Board also rejected categorically the Applicant's argument that Canada did not disclose the controlling remote devices. (*Id*. (Dec. on Appeal at 2-513).)

Ultimately, the only basis the Board accepted for allowance of claims related to a finding that Canada did not disclose a wireless transceiver associated with a remote device that was configured to send an original data message and also receive an original data message from another wireless transceiver associated with a remote device and then send a repeated data message. (*Id*. (Dec. on Appeal at 2-513 through 2-517).) This finding was premised on two distinctions of Canada from the claims. (*Id*. (Dec. on

Appeal at 2-515).) The Board first considered the machine monitors of Canada as the wireless transceivers associated with remote devices, but found insufficient disclosure in Canada because the machine monitors do not transmit to other machine monitors. (*Id*.) Instead, the machine monitors only transmit to repeaters or the command station. (*Id.*) Second, the Board considered the repeaters disclosed in Canada as the wireless transceivers, but found insufficient disclosure in Canada to support that a repeater included its own unique identifier when transmitting a message received from a machine monitor. (*Id*. (Dec. on Appeal at 2-515 through 2-517).) As noted above, the Board did not consider the disclosure of Jubin-Tornow and the configuration of its disclosed packet radio.

ARGUMENT

Unavailable during prosecution of the '511 patent was Jubin-Tornow and the guidance provided by the Supreme Court's *KSR International* decision. An analysis that includes this addition prior art and incorporates the guidance supplied by *KSR International* shows that the '511 patent is obvious.

I. SUMMARY JUDGMENT STANDARD

On a motion for summary judgment, the moving party shall prevail when there exists no dispute regarding material facts and that party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c). Summary judgment "is properly regarded not as a disfavored procedural shortcut, but rather as an integral part of the Federal Rules as a whole, which are designed to secure the just, speedy, and inexpensive determination of every action." *Celotex Corp. v. Catrett*, 477 U.S. 317, 327 (1986) (quotation removed).

Summary judgment is not avoided simply because there is some metaphysical doubt as to the material facts. *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 586 (1986). The nonmoving party must, by affidavit or other evidence, set forth the existence of a genuine issue for trial such that a reasonable finder of fact can return a verdict for the nonmoving party. *Andersen v. Liberty Lobby, Inc.*, 477 U.S. 242, 245 (1986). Consistently, patent cases are frequently resolved in whole or in part on motion for summary judgment. *See, e.g.*, *Bicon, Inc. v. The Straumann Co.*, 441 F.3d 945 (Fed. Cir. 2006); *N. Am. Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335 (Fed. Cir. 2005); *Gammino v. Cellco P'ship*, 527 F. Supp. 2d 395 (E.D. Pa. 2007).

Further, determining that the claims of a patent would have been obvious is a legal determination for the court, *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S. Ct. 1727, 1745 (2007), and obviousness is appropriately resolved by summary judgment motion. *Ricoh Co., Ltd. v. Quanta Computer, Inc.,* 550 F.3d 1325 (Fed. Cir. 2008) (affirming grant of summary judgment finding patent obvious). Expert testimony may resolve potential issues of material fact, and, thus, where "the content of the prior art, the scope of the patent claim, and the level of ordinary skill in the art are not in material dispute, and the obviousness of the claim is apparent in light of these factors, summary judgment is appropriate." *KSR Int'l*, 127 S. Ct. at 1745-46.

II. LEGAL PRINCIPLES REGARDING INVALIDITY AND OBVIOUSNESS.

A. The Framework For Evaluating Invalidity.

A patent is invalid if, when viewed by one of ordinary skill in the art, it is merely an obvious advancement of the art. *See* 35 U.S.C. § 103(a). The invalidity inquiry

proceeds on a claim by claim basis, and each claim is presumed valid. 35 U.S.C. § 282. The presumption, however, is not conclusive, as when a prior art reference was not cited to the PTO during prosecution of the application, the movant may more easily carry its burden. *See EWP Corp. v. Reliance Universal, Inc.*, 755 F.2d 898, 905 (Fed. Cir. 1985). "[P]rior art *not* before the PTO may so clearly invalidate a patent that the burden is fully sustained merely by proving [the] existence [of the prior art] and applying the proper law." *Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359-60 (Fed Cir. 1984) (italics supplied).

Determining the validity of a patent is a two-step process. First, the court construes the disputed terms of the claims at issue. *See, e.g.*, *Elmer v. ICC Fabricating, Inc.*, 67 F.3d 1571, 1574 (Fed. Cir. 1995). Having construed the patent claims in this case, the court then considers the construed claims in light of the prior art. *Id*. A court's claim constructions apply equally to the issues of validity and infringement. *See W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 842 F.2d 1275, 1279 (Fed. Cir. 1988) ("Having construed the claims one way for determining their validity, it is axiomatic that the claims must be construed in the same way for infringement.")

B. The Obviousness Inquiry.

While a patent's validity is a legal question, certain factual underpinnings, regarding (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art; and (4) any secondary indicia of nonobviousness, guide that determination. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S. Ct. 1727, 1734 (2007) (citing *Graham v. John Deere Co.*, 383 U.S. 1,

17-18, 86 S. Ct. 684 (1966)). Rejecting a rigid application of the "teaching, suggestion or motivation test," the *KSR International* decision endorsed *Graham*'s "functional approach" for evaluating obviousness. *Id*. at 1739. This functional approach is intended to guard against the patenting of combinations that only unite old elements with no change in their respective function, because such patenting " 'obviously withdraws what is already known into the field of monopoly and diminishes the resources available to skillful men.' " *Id*. at 1739 (quoting *Great Atlantic & Pacific Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 152, 71 S. Ct. 127 (1950)).

Elaborating with respect to combining known elements in a manner that only achieve predictable results, the *KSR International* Court stated:

> this is the principal reason for declining to allow patents for what is obvious when it does not more than yield predictable results.

Id. at 1739. Considering its earlier precedents of *United States v. Adams*, 383 U.S. 39, 86 S. Ct. 708 (1966), and *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 90 S. Ct. 305 (1969), that found patents obvious, the Supreme Court emphasized earlier language that guides the obviousness determination:

> when a patent "simply arranges old elements with each performing the same function it had been known to perform" and yields no more than one would expect from such an arrangement, the combination is obvious.

Id. at 1740 (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282, 96 S. Ct. 1532 (1976)). Thus, a predictable variation of known prior art is likely barred by 35 U.S.C. § 103. *Id*. To prevent the withdrawal of knowledge from the public domain, "a court must ask

whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id*.

Accordingly, Supreme Court precedent instructs that the obviousness inquiry is one of common sense. *See id*. at 1742-43 ("Rigid preventable rules that deny factfinders recourse to common sense, however, are neither necessary under our case law or consistent with it.") "Any need *or* problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id*. at 1742 (italics supplied). It is, therefore, improper to confine the obviousness analysis

> by a formal conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents.

Id. at 1741. In evaluating and applying the prior art, the skill and intuition of one of ordinary skill in the art should not be underestimated. Any number of prior art references may be combined, see *id*. at 1738, 1744 (obviousness based on multiple patents), and

> [c]ommon sense teaches . . . that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.

Id. at 1742. Amplifying, "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton." *Id*.

Another indication of obviousness is when it is "obvious to try." *Id*. at 1742. In certain situations there exist only a "finite number of identified, predictable solutions" to resolve a design need, and if those potential solutions are within the technical grasp of

one of ordinary skill, it would be expected that those options are tried. If the combination yields the anticipated success, "the fact that a combination was obvious to try might show that it was obvious under § 103." *Id*.

III. THE ASSERTED CLAIMS OF U.S. PATENT NO. 7,103,511 ARE OBVIOUS AND, THEREFORE, INVALID.

Plaintiffs have asserted claims 1, 2, 4, 8, 9, 11, 13, 14, 16, and 27 for infringement purposes.[8] However, all of these claims are invalid as obvious under 35 U.S.C. § 103. As evident from the prosecution history of the '511 patent, Canada combined with Shaughnessy disclosed all elements of the claims except one – a wireless transceiver that can transmit original data messages and also receive and repeat original data messages from other wireless transceivers. Jubin-Tornow, unavailable at the time of prosecution, discloses this missing element. When the instruction of *KSR International* is applied, it is clear that the claims of the '511 patent are no more than the simple combination of known elements that achieve a predictable result.

A. The Level Of Skill In The Art Is Not In Dispute.

An obviousness evaluation begins with an analysis of the level of ordinary skill of one in the art. *See, e.g.*, *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 86 S. Ct. 684 (1966)). Here, the parties do not dispute that level of skill, largely agreeing that the individual would be "an engineer with experience equivalent to an undergraduate degree in electrical engineering, computer science, or computer engineering, with two years of industrial experience designing and implementing systems for monitoring and control of

[8] Plaintiffs have withdrawn infringement allegations for claims 20, 21, and 23. Accordingly, Defendants do not challenge the validity of those claims by this Motion.

physical systems." (Decl. of Randy H. Katz ("Katz Decl.") Ex. A (Expert Report of Randy H. Katz, Ph. D. ¶ 24); *see also* Prange Decl. Ex. J (Rebuttal Expert Report of Dr. Edward W. Knightly Regarding Invalidity of U.S. Patent No. 7,103,511 ¶¶ 32-33).)

B. The '511 Patent Is Not Distinguishable From The Prior Art.

1. The scope of the prior art.

Prior art references are relevant to the validity inquiry if they are from the same field of endeavor as the invention. *State Contracting & Eng'g Corp. v. Condotte Am., Inc.*, 346 F.3d 1057, 1069 (Fed. Cir. 2003) (citing *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992)). Even if not from the same field of endeavor, a reference is still relevant if it "is reasonably pertinent to the particular problem with which the inventor is involved." *Clay*, 966 F.2d at 659.

There can be no genuine dispute that Canada, Shaughnessy, and Jubin-Tornow are within the same field of endeavor as the invention disclosed in the '511 patent. The '511 patent is addressed to "[w]ireless communication networks for monitoring and/or controlling a plurality of remove devices via a host computer connected to a wide area network (WAN), and more particularly relates to systems and methods for managing communication between the host computer and the plurality of remote devices." '511 patent, 1:29-36. In light of this field of invention, Canada and Shaughnessy were both considered and found relevant by the Examiner and the Board during prosecution. (*See* Prange Decl. Ex. F (First Office Action at 2-139; Dec. on Appeal at 2-504 through 2-519).)

As for Jubin-Tornow, the reference addresses wireless communication systems and various predefined communication protocols, Jubin-Tornow at 21-27, topics that are addressed in depth in the '511 patent. Moreover, Plaintiffs' own expert Dr. Edward W. Knightly does not assert that Jubin-Tornow is outside the scope of prior art that should be considered. (*See* Prange Decl. Ex. J.) Accordingly, Jubin-Tornow is also relevant.

2. The content of the prior art.

For the purposes of this motion, three references are pertinent to finding disclosure of all limitations of the assert claims.

Canada. During prosecution of the '511 patent, the Examiner and the Board principally relied on Canada as prior art. On the appeal, the Board found that Canada disclosed most elements of the independent claims except one – a wireless transceiver associated with a remote device that could also repeat messages. (Prange Decl. Ex. F (Dec. on Appeal at 2-504 through 2-519).) Canada discloses a wireless machine monitoring and control system, a preferred embodiment of which is illustrated in Figure 1, reproduced below:

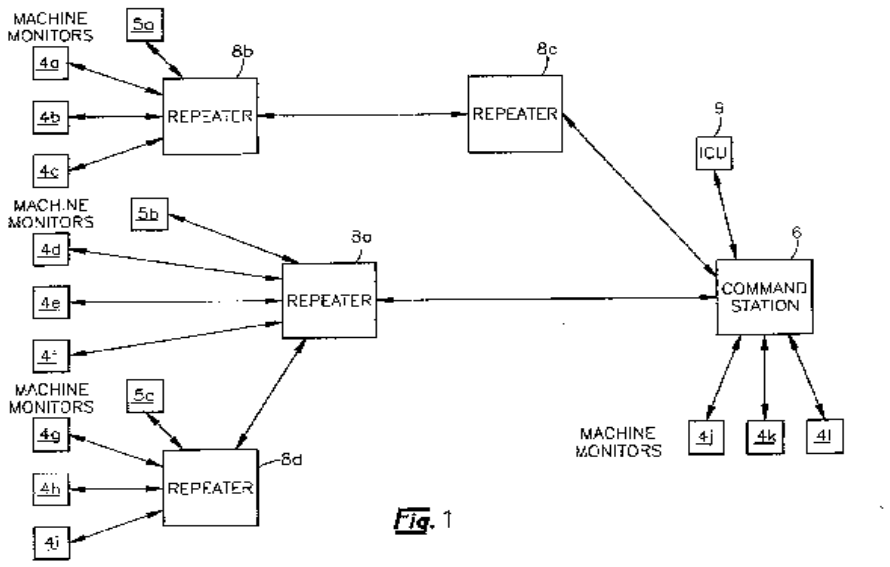


Fig. 1

The machine monitors 4a – 4l contain sensors that monitor characteristics such as vibration and temperature of industrial machines, and wireless transceivers contained within the machine monitors transmit the sensed data to either repeaters 8a-8d, or the command station 6 if within range. '491 patent, 4:41-57; 5:13-45; 15:6-8. The transmitted messages are sent using a predefined communication protocol. *Id*. at 2:40-41. The message sent by machine monitor 4 consists of at least two parts: (1) an identifier that uniquely designates the sending machine monitor, and (2) the sensed data. *Id.* at 15:52-59; 16:50-54. In addition to being able to send messages, a machine monitor is able to receive via its wireless transceiver command signals wirelessly transmitted from a command station. '491 patent, 2:29-30, 37-40; 15:16-19. Possible commands directed to

a machine monitor may include data sensing, analysis, transmission, and reprogramming functions. *Id*. at 15:16-37.

Figure 3 of Canada depicts a preferred embodiment of machine monitor 4. The machine monitor includes a wireless RF transceiver 430 and antenna 406 that are connected to a data processor 420 via a serial interface. *Id*. at 15:6-37. Further, each machine monitor consists of at least one sensor 408 "integrated with the machine monitor housing," an analog-to-digital conversion interface 416, a microcomputer 418, and a power supply 438. *Id*. at 5:13-63.

Pertinent to the site controller limitations of the '511 patent, Canada discloses a command station. Figure 4 of Canada illustrates a preferred embodiment of command station 6. The command station comprises an antenna 602 connected to a wireless RF transceiver 604. The wireless transceiver 604 connects via a serial connection 610 to a personal computer 612. *Id.* at 15:51-67. The command station may be connected to a local area PC network and route data to computers in the network. *Id.* at 8:6-11. Accordingly, an operator can remotely initiate commands that are routed through the command station and to the machine monitors. *Id*.

During the course of normal operation, the command stations sends and receives a variety of messages. The command station is configured to receive messages from machine monitors, the messages containing the sensed information and the transmitting machine monitor's unique identifier. *Id*. at 15:52-54; 16:50-54. The command station also receives repeated messages, which are messages from machine monitors relayed

through repeaters. The command station further transmits information and commands to machine monitors and formats data. *Id*. at 4:50-53.

Also during the course of normal operation, the command station manages the data transmitted within the network. As part of this function, the command station analyzes status poll messages that it circulates with machine monitors to ensure that communication pathways are maintained. *Id*. at 14:11-12. If the command station identifies an unresponsive machine monitor the command station initiates a sequence to reestablish contact via predefined commands. Upon reestablishing contact, the command station reconfigures the polling process to incorporate transmissions from the reacquired machine monitor. *Id*. at 14:15-42.

Further, the command station manages data transmissions by verifying the information received. The command station performs this function by comparing the identification code transmitted with a machine monitor message to data stored by the command station in data blocks or look-up tables. *Id*. at 16:50-62. The data blocks or look-up tables are stored in the command station's "non-volatile RAM" or a "set of DIP switches." *Id.* at 16:54-58. Using this information, the command station identifies the specific machine monitor that sent the message, and then stores the received data in a database for further analysis. *Id*. at 15:59-64.

Machine monitors may be positioned in locations that are not within a direct transmission path to the command station. *See id.* at FIG. 1. To facilitate communication, transmissions between the devices would then be relayed, or repeated, through a repeater 8. *Id.* at 4:54-57. Repeaters are employed to extend the range of

machine monitors or to locate machine monitors in positions that are not within a line of sight of the command station. *Id.* at 4:61-67. According to the disclosure in Canada, a repeater's operation is "transparent" to the other devices, meaning a repeater's retransmitted message would not include any indicator referencing the repeater. *Id.* at 18:31-35. As illustrated in Figure 8, a repeater comprises an antenna 802, wireless RF transceiver 808, a data interface to a microcontroller or repeater computer 812, and a wired power supply. *Id*. at 18:8-51.

Shaughnessy. The Examiner and the Board considered Shaughnessy as additional relevant prior art. The Board confirmed that Shaughnessy disclosed a wide area network, and that one of skill in the art would combine Shaughnessy with Canada to allow multiple locations to use the system disclosed in Canada. (Prange Decl. Ex. F (Dec. on Appeal at 2-512 through 2-513).) Shaughnessy discloses a wireless communication system using a connectionless packet network, the network wirelessly connecting a plurality of sites with a plurality of individual subscriber units. '347 patent, Abstract. The wireless communication system, a preferred embodiment depicted in Figure 2 (reproduced below), specifically discloses a connection over a wide area network (WAN) 230.

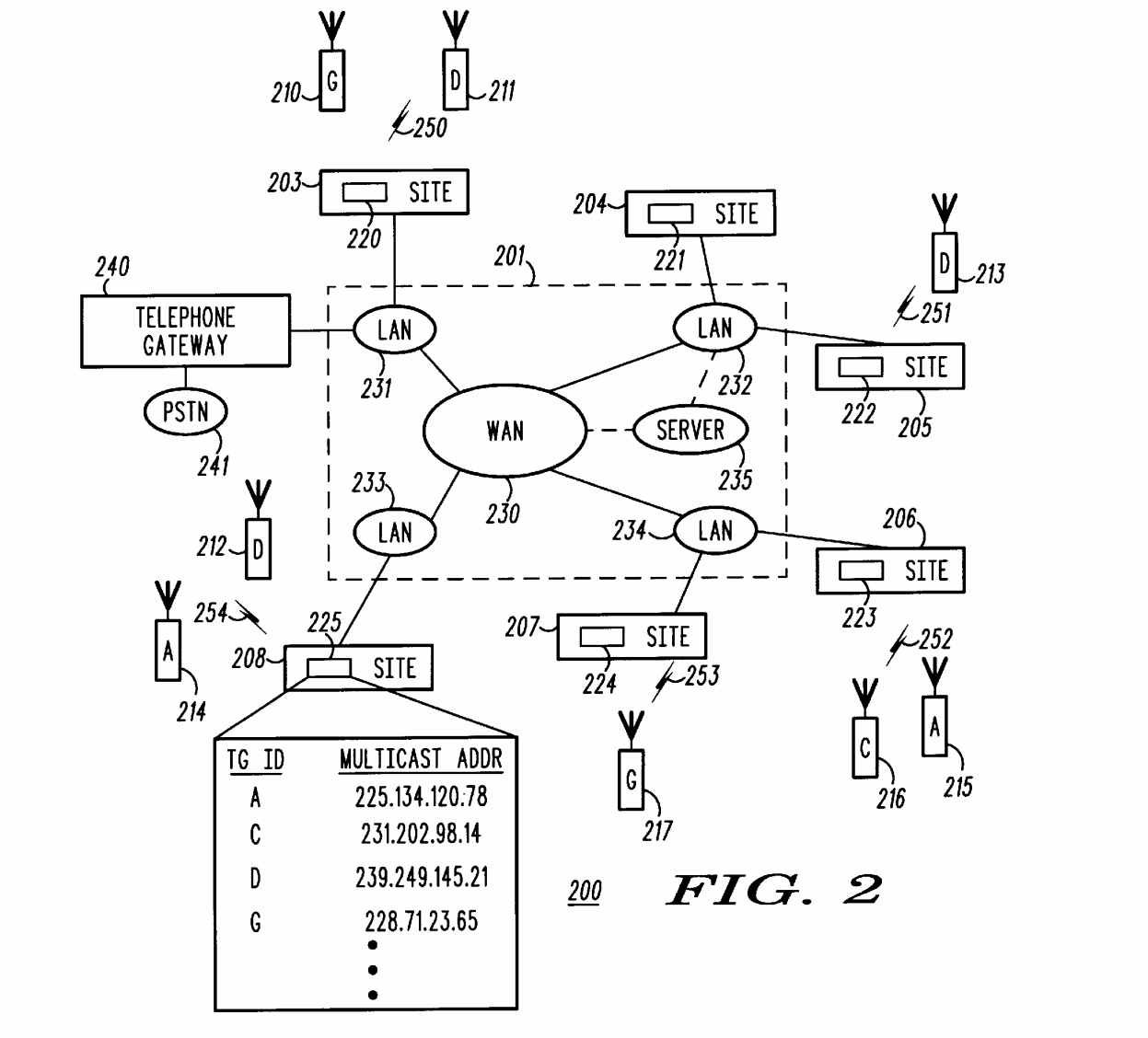


FIG. 2

Employing a wide area network 230, the wireless communication system facilitates the connection of separate sites 203, 204, 205, 206, etc., with each other through the wide area network 230 and various local area networks (LANs) 231, 232, 233, and 234. *Id*. at FIG. 2. The individual sites 203, 204, 205, 206, etc., facilitate communications between individual subscriber units 210, 211, 213, etc. via wireless RF communications 250, 251, etc. *Id*. at FIG. 1; 3:7-48. Each individual site controls a separate wireless

communication network. *See id.* at FIG. 2 (the wireless communication network comprising elements 203, 210, 211, and 250).

Shaughnessy further describes an exemplary communication process between a subscriber unit 210 and a site 203 when a subscriber unit desires to affiliate with a talk group to communicate with other subscriber units affiliated to the talk group. *Id*. at 5:13-8:13. The subscriber unit sends a wireless communication message with "well-known techniques." *See id*. at 5:14-17. Such a communication would comprise a data packet that includes the address of the base station 403 receiving the message. *See id.*; (*see also* Prange Decl. Ex. F (Examiner's Answer at 2-459)). Data content of the message may include an address associated with the sender of the communication, as well as a command indicator relating to a specific command code. '347 patent, 6:34-48; (*see also* Prange Decl. Ex. F (Examiner's Answer at 2-459)). These data packets are circulated to establish a communication link between a subscriber unit and a talk group.

Jubin-Tornow. Not considered during the prosecution of the '511 patent was Jubin-Tornow, a research article published in January 1987 by the IEEE as an invited paper. The Jubin-Tornow disclosure is startlingly relevant, as it expressly describes a wireless communication network *and* a single device including a wireless transceiver that both originates and repeats messages. That the Jubin-Tornow article was not found or disclosed by the Applicant during prosecution is surprising considering the familiarity with other IEEE publications and Jubin's work. Both general categories of references were disclosed. *See* '511 patent, [56] References Cited, Other Publications. The article describes "the current state of the DARPA packet radio network[,]" including

communication "protocols to organize, control, maintain, and move traffic through the packet radio network" that have been "designed, implemented, and tested." Jubin-Tornow at 21. A visual depiction of the Packet Radio network (PRNET) is provided in Figure 4 at page 23:

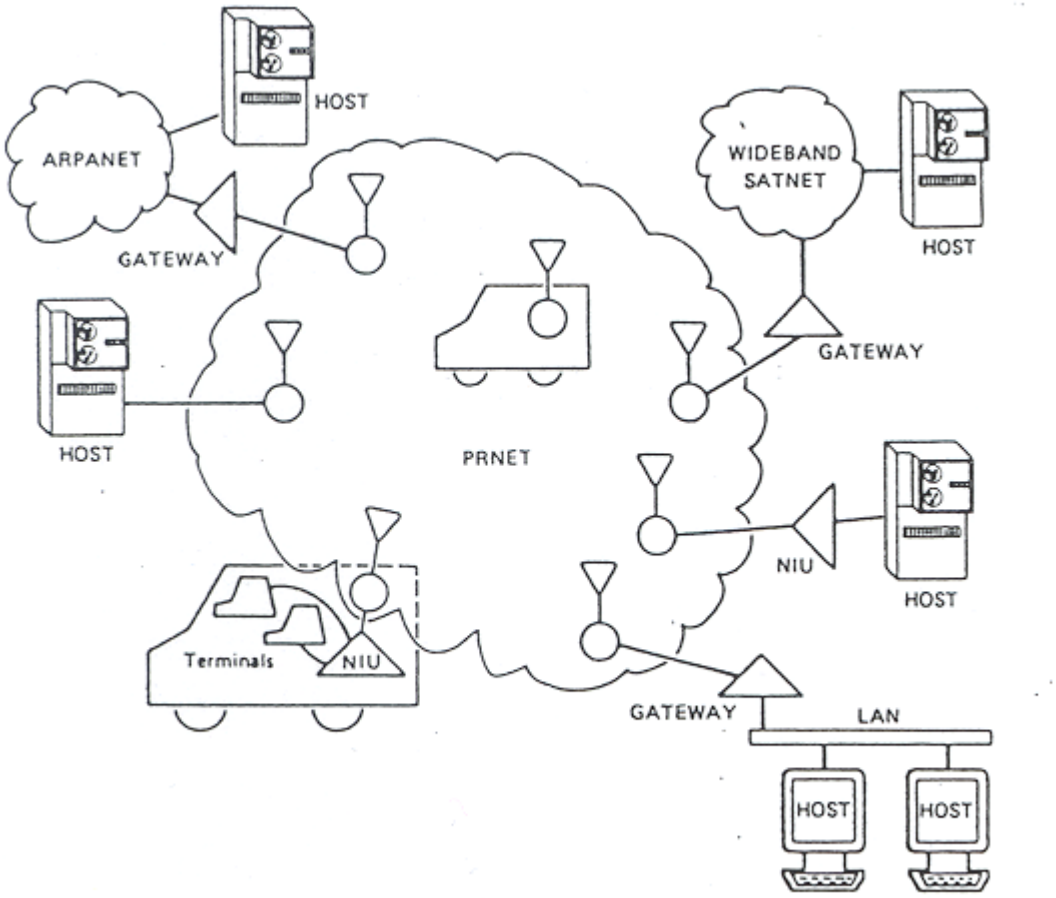


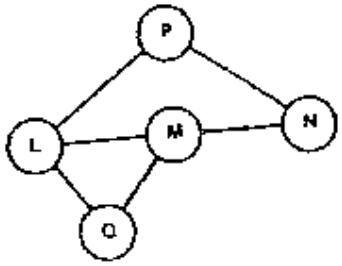
Fig. 4. Packet radio network in the Internet.

The disclosed PRNET, depicted as the cloud in Figure 4, is a wireless communication network formed by packet radios (identified in Figure 4 as circles connected to inverted triangles). The PRNET permits the communication and exchange of data between different host computers or other terminal devices that are geographically

separated. *Id*. Each host computer or other device attaches to a packet radio via a wired connection. *Id*. at 22 (Section II.C). In this manner, a device or host computer may have a one-to-one correspondence to a packet radio. Jubin-Tornow at 25 (Section III.C). To transmit data from a point within the PRNET (such as the truck in the middle of the PRNET cloud) to a point outside the PRNET, a gateway may be employed to connect the PRNET to another network (such as the identified ARPANet, WIDEBAND SATNET, or LAN). *See* Jubin-Tornow at FIG 4. To one of skill in the art, gateways are commonly known devices used to translate and manage communications across two different types of networks. (Katz Decl. Ex. A (at ¶¶ 46-48).)

Packet radios are configured to wirelessly transmit and receive data messages communicated through the PRNET. Jubin-Tornow at 21 (Section II.A); 23 (Section III.C). A packet radio consists of a wireless RF transceiver connected to a microcontroller that controls the routing and flow of messages. *See* Jubin-Tornow at 22 (Section II.C). The packet radio may be connected to a host or other device via a wired connection, or connected to a gateway. *Id.* A packet radio sends a message by using a predefined communication protocol programmed into each packet radio. *Id.* at 25-30 (Sections IV & V (discussing protocols)). Because the packet radio's radio frequency interface is a transceiver, and because of its programmed communications protocol, a packet radio can receive data for transmission from an associated device, originate a transmitted message comprising data received from the associated device, *and* "receiv[e] a [message] and relay it on to a [packet radio] that is one hop closer to the final destination." *Id.* at 22 (Section II.C). These transmission capabilities provide a network

with redundant communication pathways that form a mesh, or cloud, as illustrated in Figure 2, reproduced below:



There, devices L, M, N, O, and P are packet radios, the connecting lines reflecting available multi-hop communication pathways. A "hop" is one transmission, for example, packet radio M to packet radio N.

Data sent from a device to a remote host over the PRNET is first transmitted to the packet radio associated with the device. *Id.* at 22 (Section II.C). The packet radio then transmits the received data as a message over the radio channel using its RF transceiver. The message consists of several parts, including the data from the device, an end-to-end ("ETE") header, and a routing header. *See id.* at 25 (Section IV.A). The ETE header "contains the source device ID," and "stays with the packet from its creation by the source device throughout its forwarding through the PRNET including its delivery to the destination device." *Id*.

Particularly germane to the obviousness analysis is the fact that a packet radio is also configured to repeat messages received from other packet radios. When repeating a

received message, the values in the ETE header of the repeated message, including source device ID, do not change. *See id.* at 25 (Section IV.A). In addition, other data is included in a routing header that relates to the repeating packet radio. When a packet radio relays a message, it includes its own identifier ("Transmitting PR ID") in the header of the message. *Id.* at 25 (Section IV.A).

UCLA Article. As Jubin-Tornow demonstrates, wireless communication networks and related research and development of such systems have been a focus since as early as 1977, when research relating to the PRNET began. *See* Jubin-Tornow at 21; *see also* '511 patent, (56) References Cited, Other Publications. Application of wireless communications networks to sensor networks developed out of that research and was the focus of many research groups. At least one research group, associated with UCLA's Electrical Engineering Department, focused on the design and development of these wireless sensor networks for various applications:

> *Abstract* -- Low power wireless sensor networks provide a new monitoring and controlling capability for civil and military applications in transportation, manufacturing, biomedical, environmental management, and safety and security systems. Wireless microsensor network nodes, operating at average and peak power levels constrained by compact power sources, offer a range of important challenges for low power methods. This paper reports advances in low power systems spanning network design, through power management, low power mixed signal circuits, and highly integrated RF network interfaces. Particular attention is focused on methods for low power RF receiver systems.

K. Bult *et al.*, *Low Power Systems for Wireless Microsensors*, at Abstract.

3. There can be no genuine dispute that all claim limitations of the '511 patent are disclosed in the prior art.

Plaintiffs take a more restrictive view of what is disclosed in the prior art references of Canada and Shaughnessy than did the Applicant during prosecution of the '511 patent. In an Interrogatory Answer (Prange Decl. Ex. G), Plaintiffs now assert that Canada fails to disclose, in addition to a wireless transceiver that originates, receives, and repeats messages, a site controller as construed by the Court, a method involving customers (claim 27), and wireless transceivers configured to transmit messages with the disclosed message content.[9] (*See id.*) These elements, however, are plainly disclosed in the prior art.

Further, despite Defendants' attempt to further narrow the issues for summary judgment and trial, Plaintiffs refuse to identify limitations of the claims that are absent from Shaughnessy. *See id.* Nonetheless, Defendants also identify those claim limitations disclosed by Shaughnessy, as confirmed by the PTO during prosecution of the '511 patent.

Plaintiffs also create make-work in claiming numerous "conditional" nondisclosures. In fact, of the 19 disputed limitations, 10 depend from the nondisclosure of other limitations. The disclosure of these limitations is largely self-explanatory when the principle structures are found, such as the wide area network, a wireless transceiver,

[9] Plaintiffs also assert that, because there is no disclosure of the wireless transceiver element, various other limitations are missing. These other limitations are generally communications between the various structures of the system. The existence of the various structures would allow for the communication between them, as one of skill in the art would readily recognize.

and a site controller, for example. For completeness, these limitations are addressed as well.

The table below lists the claim limitations that Plaintiffs allege are not present in Canada and summarizes where the limitations can be found in the prior art.

Disputed Limitation	**Claim**	**Prior Art Disclosure**	**Discussed at**
wide area network	1, 8, 13, 27	Shaughnessy Jubin-Tornow Canada	32-34
a host computer connected to a wide area network	1, 8, 13	Shaughnessy Jubin-Tornow Canada	32-34
monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network	1, 8, 13	Canada Shaughnessy Jubin-Tornow	32-34
wireless transceiver (wireless transceiver means) associated with a remote device that originates and repeats messages with the claimed message content	1, 8, 13, 27	Canada Jubin-Tornow	34-39
site controller	1, 13, 27	Canada	39-43
a site controller that is in communication with at least one of the plurality of wireless transceivers	1, 27	Canada Jubin-Tornow	44

the site controller does not "receiv[e] original data messages or repeated data messages"	1, 27	Canada Jubin-Tornow	44
providing information related to the sensor data signal to the wide area network for delivery to the host computer	1, 27	Canada Shaughnessy Jubin-Tornow	44-45
a means for receiving each of the original data messages and the repeated data messages	8	Canada	41-43
a means for identifying, for each received message, the remote device associated with the corresponding sensor data signal	8	Canada	41-43
a means for providing information related to the sensor data signal to the wide area network for delivery to the host computer	8	Canada Shaughnessy Jubin-Tornow	41-43
at least one of the plurality of wireless transceivers is further configured to provide the original data messages and the repeated data messages to a site controller connected to the wide area network	13	Canada Jubin-Tornow	44
repeaters being in communication with at least one of the plurality of wireless transceivers	2, 9, 14	Canada Jubin-Tornow	46
repeaters (repeater means) that transmit repeated data messages with the claimed message content	2, 9, 14	Canada Jubin-Tornow	45-46
content of a data packet	4, 11, 16	Shaughnessy Canada Jubin-Tornow	46-48

customers	27	Shaughnessy	48-49
method for enabling customers to monitor remote devices via a wide area network (WAN)	27	Shaughnessy Jubin-Tornow Canada	48-49
enabl[ing] each of a plurality of customers to monitor at least one remote device via a wide area network	27	Shaughnessy Jubin-Tornow Canada	48-49
providing an organization access to the wireless communication network	27	Shaughnessy Jubin-Tornow Canada	48-49

a. Disclosure of a "wide area network," a "host computer connected to a wide area network," and "monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network."

The preamble of independent claims 1, 8, 13, and 27 require that the wireless communication network be connected to a wide area network. These claims also identify a "host computer connected to a wide area network" in the preamble (claims 1, 8, and 13),[10] and "monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network." The disclosure of these elements should not be in dispute. In the Board's Decision on Appeal, the Board found that Shaughnessy disclosed a connection to a wide area network. (Prange Decl. Ex. F (Dec. on Appeal at 2-512).) Specifically, Shaughnessy at Figure 2 discloses a plurality of LANs 231-234 that are connected, either directly or through a server 235, to a wide area network 230. Each

[10] Claim 27 instead references customers being connected to a wide area network. Further discussion regarding customers follows.

LAN in turn is connected to a site controller 203-208, the site controllers being in individual communication with each subscriber unit 210-214. '347 patent, FIG. 2.

In addition to the disclosure in Shaughnessy, Canada discloses a remote host connected to a PC network 10 (a local area network), which in turn is connected to the command station 6. '491 patent, 8:6-10; FIG. 8. A computer associated with the PC network allows an operator to remotely control the disclosed system. *Id*. at 8:6-10. Thus, applying the "wide area network" disclosed in Shaughnessy in place of the PC network of Canada, there is disclosure of a host computer connected to a wide area network.

A wide area network and connection via a host computer is completely disclosed in Canada as a PC network with an attached computer. '491 patent at FIGS. 1 & 8; 8:6-10. Consistent with Figures 1 and 11 of the '511 patent, the parties agreed that the wide area network as used in the '511 patent may comprise an internet or intranet. (Defs. Opening Markman Br. at 28 (Dkt. No. 48).)

The wide area network and connected host computer are further disclosed in Jubin-Tornow. Referring to Figure 4, the PRNET is connected via a gateway to the ARPANET, and the ARPANET itself is connected to a host computer. The ARPANET corresponds to a wide area network. (Katz Decl Ex. A (at 37-38 & ¶ 66).) The "hosts" identified in Jubin-Tornow at Figure 4 are computers. (*Id*.)

The connection of a wireless communication network to a wide area network and a host computer connected to a wide area network are also old and well known in the prior art. As described by the Applicant in the "Background of the Invention" section of the '511 patent:

> In many of these "automated monitoring systems," a host computer in communication with a wide area network monitors and/or controls a plurality of remote devices arranged within a geographical region. The plurality of remote devices typically use remote sensors and controllers to monitor and respond to various system parameters to reach desired results.

'511 patent, 1:45-51.

The limitations regarding "monitoring and controlling …" are clearly disclosed. First, the Applicant admits as much as shown in the above-quoted language in the '511 patent. *Id*. Second, as Plaintiffs admit that Canada discloses the "monitoring and controlling of a plurality of remote devices," (*see* Prange Decl. Ex. G (attachment at 1)), and, as discussed above, Canada discloses a host computer connected to a wide area network, Canada discloses the entire limitation. Third, the Plaintiffs admission combined with the additional limitation language (wide area network and a connected host computer previously discussed) are disclosed in Canada in view of Shaughnessy, or in Jubin-Tornow, one of skill in the art could combine theses elements to satisfy the limitation.

b. Disclosure of a single device having "wireless transceivers" configured to transmit an "original data message" and a "repeated data message," each message with the content described in the claims.

Independent claims 1, 13, and 27 require that the wireless transceivers associated with remote devices (for claim 8 wireless transceiver means) be configured to transmit

two types of messages, an original data message and a repeated data message.[11] As noted above, the original data message consists of the unique identifier of the transmitting wireless transceiver associated with a remote device, and the sensor data. *See, e.g.*, '511 patent, claim 1. The repeated data messages content consists of the same two elements. (Markman Order 02/10/2009 at 2 (No. 76).) Accordingly, when repeating a message, the wireless transceiver does not add its own unique identifier and is effectively transparent to the communication path.[12]

i. *Disclosure in Canada*.

Canada discloses a wireless transceiver (and wireless communication means) associated with a remote device that transmits an original data message. The machine monitor 4 of Canada includes a sensor 408 connected to a wireless transceiver 430 via a data interface (analog-to-digital converter 416). '491 patent, 5:13-18, 36-44; 15:6-8; FIG. 3. Further components of a machine monitor 4 include a monitor computer 418, memory 422, serial interface 426, a power supply 438, and an antenna 406. *Id*. at 5:46-60; 15:6-15; *see also* FIG. 3. When a data message (an original data message) is sent by a machine monitor, the content of that message includes both a unique identifier corresponding to that machine monitor and the sensor data. *Id.* at 15:51-60; 16:50-54.

[11] Claim 27 actually discloses a separate type of repeated message identified as a "repeated data messaging" with content additional to what is contained in a repeated data message of independent claims 1, 8, and 13. It is addressed separately.

[12] Defendants reserve their objection on the construction of the term "repeated data message" as it appears in claims 1, 8, and 13.

In addition, Canada discloses repeater 8 which repeats messages received from machine monitor 4. '491 patent, 4:61-67. The repeated data message is a relay of the message received from a machine monitor, and would include the content of the original message – here the unique identifier of the machine monitor and sensor data. *See id.* at 16:50-54. The function of the repeater when repeating messages is "transparent" to the network, and the repeater does not include its own unique identifier in the repeated message. *Id.* at 18:31-35; (Prange Decl. Ex. F (Dec. on Appeal at 2-516).) This repeat function is the same as performed by the claimed wireless transceiver associated with a remote device.

As *KSR International* had not yet been decided, the Board did not consider whether one of skill would combine the functionality of the machine monitor 4 (configured to send an original data message) with a repeater 8 (capable of sending a repeated data message) to achieve a predicted result. The Applicant obtained allowance of the claims by emphasizing that one device must be configured to originate messages *and* repeat messages received from other devices. (*See* Prange Decl. Ex. F (Appeal Br. at 2-394 through 2-396).) According to the Applicant, the benefit of this improvement was extending the range of the wireless transceivers associated with remote devices without the need for standalone repeaters. (*Id.*) Looking to Canada, the "transparent" repetition of messages performed by a repeater in Canada is the same "transparent" repetition performed by the wireless transceivers associated with remote devices. The message content is the same. *Compare* (Markman Order at 1 (construction of "repeated data message")) *with* '491 patent, 16:50-54; 18:31-35. It would be apparent to one of skill in

the art to move the transparent repeat function of the repeaters to the machine monitors. This modification results in predictably eliminating the need for standalone repeaters.

ii. Disclosure in Jubin-Tornow.

Jubin-Tornow explicitly discloses a wireless transceiver associated with a remote device that both originates and repeats messages, the feature that the Board found absent from Canada during prosecution. Jubin-Tornow discloses the single device – a packet radio that comprises a wireless transceiver configured to send and repeat messages. Jubin-Tornow at 22 (describing packet radios as capable of performing half-duplex transmission/reception and purpose to repeat messages); (Katz Decl. Ex. A (at ¶¶ 49-51, 66). Jubin-Tornow also discloses a remote device to which the wireless transceiver is associated, as a packet radio may have a one-to-one correspondence with a device, and the device could be a sensor or sensor/actuator. Jubin-Tornow at 22-23 (Section II.C (discussing a direct interface) & FIG. 4).[13]

The packet radio is configured to send the claimed original data message. A packet radio may be connected to a device via a wired connection. Jubin-Tornow at 23 (Section II.C) ("A host computer may be directly interfaced to a [packet radio].)"; FIG. 4; FIG. 6 (wherein packet radios L and N are associated with devices 1 and 2, respectively). Using the designations in Figure 6, when device 1 sends data to packet radio L to transmit, the subsequent transmission of L is an original data message. Jubin-Tornow at

[13] That DARPA projects were contemplating the combination of sensors or sensor/actuators with packet radio technology and wireless communications system is confirmed by the UCLA article. The subject of the work described is also done with the financial support of DARPA. K. Bult *et al.*, *Low Power Systems for Wireless Microsensors*, at Summary Acknowledgement.

25 (Section III.C). The message content transmitted includes the data received from device 1, as well as a source device identifier (Source Device ID) and a source packet radio identifier (Source PR ID). Jubin-Tornow at 25 (Section IV.A). These identifiers are, necessarily, unique. There is also a one-to-one correspondence between a source device ID and a source PR ID, as a packet radio can be exclusively associated with one device. *Id*. at 22-23 (Section II.C & FIG. 4).

A packet radio is explicitly configured to receive an original data message and transmit a repeated data message. *See* Jubin-Tornow at 22 ("Each [packet radio] is responsible for receiving a packet and relaying it on to a [packet radio] that is one hop closer to the final destination."). A relayed message includes the data from the received message. (*See id.*) Further, the relayed message includes the identifier corresponding to the packet radio and device that originated the message. The ETE header of the message, which includes the source device ID, continues with the message to its destination, and is not modified when a message is repeated. *Id.* at 25 (Section IV.A). Further, the "source PR ID," corresponding to the originating packet radio, is also unchanged when a message is retransmitted. *Id.* at 25-26 (Section IV.A) ("The routing header stays on the packet throughout its forwarding through the PRNET subnet. The source PR ID . . . created by the source PR stay fixed throughout the packet's journey to the destination PR.").

iii. *Claim 27 and Jubin-Tornow disclosure*.

Claim 27 discloses a "repeated data messaging" with different message content than the other independent claims. The content of a "repeated data messaging" includes the sensor data, the identifier of the wireless transceiver associated with a remote device

that sent the original data message, and the identifier of the wireless transceiver associated with a remote device sending the repeated data messaging. *See* '511 patent, claim 27. Returning to Jubin-Tornow, and as described in the previous paragraph, the repeated message sent by a packet radio includes the data of the original message and the identifier of originating device and packet radio. The repeated message sent by a packet radio also includes the identifier of the relaying device (the "transmitting PR ID"). Jubin-Tornow at 25 (Section IV.A). As shown in the forwarding sequence on page 26 of Jubin-Tornow, packet radio "M" is relaying a message, and in the routing header of its sent message the "transmitting PR ID" is set to its identifier. *Id.* at 26 (Section IV.B).

c. Disclosure of a "site controller" that "manages and relays data between the wireless transceivers and the wide area network."

The Court's construction of "site controller" requires that it "manage" and "relay" data between the wireless transceivers and the wide area network. (Markman Order at 2.) Despite the Applicant's failure to make any argument during prosecution that Canada does not disclose a site controller, Plaintiffs now assert that Canada fails to disclose a site controller. Turning first to the Court's construction, Canada, in light of the knowledge of one of skill in the art, discloses a site controller. As claim 8 includes means-plus-function language, the structures disclosed that perform the identified functions are addressed separately.

i. Site controller in claims 1, 13, and 27.

Command station 6 of Canada is the claimed site controller. Command station 6 connects to the machine monitors 4 and PC network 10 as an intermediary. As an

intermediary, the command station transfers, or relays, data from the machine monitors (wireless transceivers) to the PC network 10. '491 patent, 8:6-10 & FIG. 8. Considering that Canada also discloses a connection to a wide area network, see section III.B.3.a., *supra*, or incorporating the wide area network of Shaughnessy or Jubin-Tornow in place of the PC network, the command station would operate to relay data between the machine monitors (wireless transceivers) and the wide area network.

Command station 6 further acts to manage data that is communicated from the machine monitors (wireless transceivers) to the wide area network. Specifically, command station 6 initiates communications with the machine monitors 4 to retrieve data. '491 patent, 7:28-34, 56-60. These command messages are sent through a predefined time-managed communication protocol, and are processed in a way to manage the timing of responsive messages. *Id*. at 7:13-55. Command station 6 also monitors the responsiveness of each machine monitor. *Id.* at 14:11-48. When a machine monitor does not respond, the command station will initiate a command sequence to reestablish a connection with the unresponsive machine monitor and resume data flow within the system. *Id*. at 14:11-41. The command station may also reestablishing data flow by changing message routing from a machine monitor if a repeater becomes disabled. *Id.* at 14:42-48 (the command station 6 also maintaining a "Re-Configuration Look-Up Table in which a list is maintained for all devices that each repeater 8 can communicate with at any give time," and using the same to reestablish contacts with machine monitors if a repeater is disabled.) Thus, the command station disclosed in Canada manages the flow of data from the wireless transceivers by monitoring data traffic and taking such

necessary measures to either reestablish network communications or change route paths. When combined with the remaining disclosure of Canada, Shaughnessy, or Jubin-Tornow (disclosing a wide area network), the command station functions to manage data between the machine monitors (wireless transceivers) and the wide area network.

Although the disclosures in Canada are dispositive, Jubin-Tornow also discloses a site controller in the form of a gateway that manages data from the packet radios and then relays that data from the packet radios (wireless transceivers) to the wide area network. (Katz Decl. Ex A. (at 39-40).) In response, Plaintiffs' expert Knightly cites a passage in Jubin-Tornow referring to the routing header being removed from the data packet before it reaches the destination device and argues that, therefore, the gateway is not "configured to receive the original data messages and the repeated data messages. (Prange Decl. Ex. J (Knightly Report ¶¶ 43-49).) Plaintiffs' argument is without merit.

In fact, Jubin-Tornow discloses that the ETE header of the data packet sent by a packet radio is communicated to a destination device. Jubin-Tornow at 25-26 (Section IV.A-B). This ETE header comprises the source device ID and the message data. *Id*. As the content of the claimed "original data message" and "repeated data message" consistently comprises the originating wireless transceiver's unique identifier and the data, compare '511 patent, claim 1 with (Markman Order at 2), the information included in the ETE header that reaches the destination device would complete the disclosure.

ii. *Claim 8 means plus function disclosure*.

Disclosure of the identified structures. Claim 8 uses a means-plus-function format to claim the equivalent of a site controller. Briefly, the means-plus-function

structures that perform the identified functions are an antenna, wireless transceiver, microcontroller (computer), power supply, memory, look-up tables, and a network interface device. One of skill in the art could rely on the disclosures of Canada and common knowledge, as confirmed by Jubin-Tornow and the '511 patent disclosure, to find the disclosed structures that accomplish the claimed functions.

Command station 6 comprises an antenna 602, a wireless RF transceiver 604, a serial interface 640, and a personal computer 612. '491 patent, 15:51-64. Perhaps too obvious to state, one of skill in the art, and indeed anyone, would know that the personal computer includes a power supply. Further, the command station includes non-volatile RAM (memory) or DIP switches in which look-up tables could be stored or memory sectors devoted for identifying a remote machine monitor that sends a message. *Id*. at 16:50-62.

Finally, the structure must include a network interface device. One of skill in the art would know that, to connect the command station to a wide area network, a network interface device would be needed. Indeed, Jubin-Tornow discloses one such device, a Network Interface Unit. *See* Jubin-Tornow at 22 (Section II.C & FIG. 3). Moreover, the Applicant admits as much, relying on one of skill in the art to know how to connect a site controller to the wide area network by identifying three types of commonly known connection methods. '511 patent, 11:57-12:7.

The structures performing the functions. The disclosed structures of the mean-plus-function limitations corresponding to a site controller perform the identified functions. These functions are discussed in turn.

- "means for receiving each of the original data messages and repeated data messages."

The command station identified above performs the function of receiving original data messages and repeated data messages from, respectively, the machine monitors and repeaters. '491 patent, 15:51-54; 18:8-20. As discussed above at section III.B.3.b., Canada's machine monitors modified to include the repeat function, or Jubin-Tornow's packet radios, could be included in the system to transmit the messages with the message content disclosed in the claims to the command station.

- "means for identifying, for each received message, the remote device associated with the corresponding sensor data signal."

The command station of Canada also performs this function, using the unique identifier contained within the message to identify from which machine monitor a sensor data message originated. *Id*. at 16:50-62.

- "means for providing information related to the sensor data signal to the wide area network for delivery to the host computer."

The command station of Canada performs a similar function by providing information over a local area network (PC network 10) with delivery to a computer connected to the network. *Id*. at 8:6-11; FIG. 8. Including a commonly-known network interface device as part of the structure, discussed above, expectantly allows the command station to provide the information to a wide area network.

d. Other site controller-related limitations.

Plaintiffs assert the lack of a variety of other claim limitations involving the site controller and communications between the wide area network or wireless transceivers. Given that there is disclosure of the wireless transceivers that can originate and repeated

messages, and that there is disclosure of a site controller, disclosure of the remaining limitations is easily shown.

i. *"a site controller that is in communication with at least one of the plurality of wireless transceivers" and "a wireless transceiver configured to provide the original data messages and the repeated data messages to a site controller connected to the wide area network".*

As Canada discloses a site controller, see section III.B.3.c. above, and Canada or Jubin-Tornow discloses the wireless transceivers, see section III.B.3.b. above, their implementation in a system would disclose the claim limitation. Indeed, Figure 1 of Canada, reproduced above at page 19, eliminates any doubt, as the command station 6 (site controller) is in communication with several machine monitors (wireless transceivers). Substituting Jubin-Tornow's packet radios for the machine monitors equally results in disclosure of the claim limitation.

Likewise, the machine monitors, now configured to send original data messages and repeated data messages, see section III.B.3.b., would also be configured to transmit those messages to a site controller. Again, substituting Jubin-Tornow's packet radios for the machine monitors equally results in the disclosure of the claim limitation.

ii. *the site controller "receiving original data messages or repeated data messages".*

Continuing with the disclosure in Canada, because the command station is in communication with machine monitors, the command station receives original data messages from machine monitors. *See id.* at 15:51-54; 16:50-54. The command station also receives repeated data messages from repeaters. *Id*. at 18:8-20. Substituting the

modified machine monitor discussed above, or the packet radio of Jubin-Tornow, both of which transmit both original data messages and repeated data messages, there is disclosure of the command station (site controller) receiving original data messages and repeated data messages.

iii. *"providing information related to the sensor data signal to the wide area network for delivery to the host computer".*

As explained in section III.B.3.a. above, relating to the means-plus-function elements, there is disclosure in Canada of providing information to a local area network (PC network). Using the remaining disclosure of Canada relating to a wide area network, or modifying the system with Shaughnessy or Jubin-Tornow to incorporate the site controller's connection to the wide area network, there is disclosure of the claim limitation.

e. *Disclosure of repeaters receiving original data messages and transmitting repeated data messages, and further being in communication with wireless transceivers.*

i. *Repeaters receiving original data messages and transmitting repeated data messages.*

Claims 2 and 14, as well as the equivalent means disclosure of claim 8, identify a repeater in communication with at least one of the wireless transceivers or wireless transceiver means associated with a remote device of the respective independent claims, and is further configured to receive an original data message and then transmit a repeated data message. As discussed in section III.B.3.b.*i.*, *supra*, Canada discloses a repeater that receives a message (an original data message) with sensor data and a unique identifier

referencing the sending machine monitor, and thereafter retransmits the message. The repeater's structure, depicted in Figure 7 of Canada, consists of a RF transceiver 808, microcontroller/computer 812, memory 816, and an antenna 802. '491 patent, 18:8-31; FIG. 7. Canada's sole distinction is that its repeater does not include its own unique identifier when relaying the message. (Prange Decl. Ex. F (Dec. on Appeal at 2-504 through 2-519).)

Remedying the alleged deficiency of Canada (an insignificant change as it is), as discussed in section III.B.3.b.*i*., *supra*, Jubin-Tornow discloses a packet radio that is configured to receive a message from another packet radio, and then forward the message. The forwarded message includes a field in the routing header that identifies the packet radio that corresponds to the transmitting packet radio. Jubin-Tornow at 25. The forwarded message would also include the data of the original data message. *See* Jubin-Tornow at 26.

ii. *Repeaters in communication with wireless transceivers.*

Canada discloses repeaters 8 in communication with machine monitors 4. '491 patent, FIG. 1. Combining the modified machine monitor of Canada or the packet radio of Jubin-Tornow with the repeater disclosure of above discloses repeaters being in communication with at least one wireless transceiver.

f. Disclosure of the content of a data packet.

Claims 4, 11, and 16 describe the content of a data packet, the data packet itself defined as a formatted block of data. Disclosure of the claimed structure is found in all three prior art references.

i. Shaughnessy.

Preliminarily, the Examiner held that Shaughnessy disclosed the various elements of a data packet, a finding not contested by the Applicant. (*Compare* Prange Decl. Ex. F (Final Office Action at 2-240 through 2-241) *with* Ex. F (Appeal Br.).) An Examiner's conclusion as to the disclosure of reference provides relevant guidance. *See Hewlett-Packard Co. v. Bausch & Lomb, Inc.*, 909 F.2d 1464, 1467 (Fed. Cir.1990) ("When the reference relied on was before the patent examiner, a reasonable jury may give weight to the examiner's view of the reference when deciding whether invalidity has been proved by clear and convincing evidence.") Indeed, relying on the Examiner's conclusion, Shaughnessy discloses the receiver address ('347 patent, 5:14-32); the sender address (*id*. at 6:34-45); and a command indicator (*id.* at 6:45-48) explicitly and inherently in its own disclosure of transmitting data messages to facilitate communications between subscriber units 210-217 and sites 203-208. *See id.* at FIG. 2.

ii. Canada.

The various claimed parts of a data packet are disclosed in Canada based on knowledge of one of skill in the art. Canada discloses several types of messages, including command messages requesting sensed data that are sent from the command station to machine monitors. '491 patent, 13:59-14:10; 15:16-32. To one of skill in the

art, the message must include the address of the receiver so the message is delivered to the proper machine monitor, and the message must have a command indicator so the receiving machine monitor knows what to do with the message. Further, as devices in Canada also transmit acknowledgment messages to the sender of a received message, the sender address is further needed so that the acknowledgment message can be transmitted. *See id.* at 13:26-14:10.

iii. Jubin-Tornow.

The three elements identified for the data packet are also disclosed in Jubin-Tornow and are common knowledge to one of skill in the art. Referencing the table appearing on page 25 of Jubin-Tornow that details the data content of the routing header for a data packet, the Source PR ID and Transmitting PR IDs identify the address of the sender. Further, the field Next PR ID and Destination PR ID identify the address of the receiver.[14] (*See also* Katz Decl. Ex A (at 41-42).) As for the command indicator, it would be common knowledge to one of ordinary skill in the art to include a command indicator that specifies a predefined command code in the body of the transmitted message. (*Id.*)

[14] Regarding the disclosure of structure to satisfy the means-plus-function elements, the unique identifiers would be, to one of skill in the art, a MAC address. (Katz Decl Ex. A (at 21-22).)

g. Claim 27 and disclosure of "customers," "enabling a plurality of customers," "providing an organization access to the wireless communication network," and the method thereto.

Claim 27 introduces several limitations in the context of a method claim for implementing the claimed system. Generally, claim 27 relates to a method to implement the disclosed wireless communication system in a manner that customers (presumably of the one implementing the system) may use the system to monitor a remote device. '511 patent, claim 27. Turning first then to the "method" limitation, which appears only in the preamble, the patentee admits that monitoring systems that are connected to a wide area network via a host computer are old and well known in the art. '511 patent, 1:40-55. Further, the patentee identifies that these systems are provided to customers. *See id.* at 1:67-2:4. It would be intuitive to one of skill in the art to practice a method that would enable a customer to use the disclosed system.

Not only that, it would also be intuitive to one of skill in the art to provide the disclosed system to customers for their use, thereby "enabling" a customer's use of the system. An doubt about the disclosure of customers in the prior art using a disclosed system is resolved with Shaughnessy, which discloses a plurality of subscriber units 210-217 that each connect to the wireless communication network 250 that is managed by a site 203-208. *See* '347 patent, FIG. 2. These subscriber units are customers that use the larger network. *See id.*

Plaintiffs' final objection is to disclosure of "providing an organization access to the wireless communication network," arguing that the limitation is not disclosed because

the wireless communication network is not disclosed. (Prange Decl. Ex. G (attachment at 12).) As set forth in detail above, the wireless communication network is disclosed. Further, organizational access to the wireless communication network is admitted by Plaintiffs' (*see id*.), and confirmed by Jubin-Tornow. Figure 4 discloses multiple host connected to the PRNET. *See* Jubin-Tornow at 23 (FIG. 4). To one of skill in the art, these hosts can represent organizations. (Katz Decl. Ex. A (at 55).)

4. The basis for the combination of the prior art.

As *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S. Ct. 1727, 1739 (2007) instructs, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does not more than yield predictable results." If a person of ordinary skill in the art can implement a predictable variation of a finite number of options that resolve a presented problem, that the combination is obvious to try is indicative that the combination is obvious. *Id*. at 1742. "[A]ny need or problem known in the field of endeavor at the time the invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id.* at 1742. To that end, the inquiry becomes more flexible, such that one must allow for the "inferences and creative steps" that one of skill in the art would employ to combine related pieces of prior art. *Ball Aerosol and Specialty Container, Inc. v. Ltd. Brands, Inc.*, 555 F.3d 984, 993 (Fed. Cir. 2009). Accordingly, the creativity of one of skill in the art should not be underestimated in evaluating the reasons for combining prior art references. *See KSR Int'l*, 127 S. Ct. at 1742.

The combinations here simply unite known elements with no change in their respective functions to achieve predictable results.

a. There can be no genuine dispute that one of skill in the art would combine Canada and Shaughnessy.

i. Connection to a wide area network.

The combination of Canada and Shaughnessy should not be in dispute. During prosecution, the Board held that one of skill in the art would be motivated to combine Canada with Shaughnessy to allow remote access via a wide area network. (*See* Prange Decl. at Ex. F (Dec. on Appeal at 2-512 through 2-513).) Indeed, as Canada discloses a connection to a local area network with a connected remote computer (the PC Network 10 of Figure 8), and Shaughnessy discloses multiple local area networks connected to a wide area network (Figure 2), one of skill would rely on Shaughnessy to expand the remote connectivity of Canada. (*Id*.) The combination of Canada and Shaughnessy involves known elements, and these elements continue to function in the same way. Accordingly, their combination would be obvious. *KSR Int'l*, 127 S. Ct. at 1739.

ii. Content of a data packet.

Also considered by the Examiner, one of skill would be further motivated to combine Canada and Shaughnessy to derive the content of a transmitted data packet. Both Canada and Shaughnessy disclose predefined communications protocols, and other predefined communication protocols were known in the art. *See, e.g.*, '491 patent, 2:41-42; 3:36-38 (disclosing a predefined communication protocol); '347 patent, 3:41-48 (disclosing a predefined communication protocol); '511 patent, [56] References Cited,

OTHER PUBLICATIONS (identifying articles regarding communication protocols); Jubin-Tornow at 25-29. These wireless communication networks must be robust enough to transmit multiple types of messages to multiple locations within a wireless communication network. One of skill would be motivated to combine Canada and Shaughnessy to employ a data packet within the wireless communication network to communicate multiple commands to different addresses. (*See* Prange Decl. Ex. F (Examiner's Answer at 2-459).) Again, this combination is no more than applying known elements in the art that results in their expected function. It is an obvious extension of the known art.

iii. *Distribution of a wireless communication network to customers.*

One of skill would also combine Canada and Shaughnessy to implement a system that allows access to multiple customers. Shaughnessy discloses a wide area network connected to multiple local area networks, each local area network connected to a site, and the sites managing the connections of a plurality of independent subscriber units. '347 patent, Fig. 2. Under Shaughnessy's teaching multiple entities, including customers, can have system access to the wireless communication network. Canada only discloses a single system. To expand use of the system in Canada, one of skill would be motivated to combine Shaughnessy with Canada to allow multiple customers to access the wireless communication system disclosed in Canada. (*See* Prange Decl. Ex. F (Examiner's Answer at 2-475).)

b. There can be no genuine dispute that one of skill in the art would combine Canada and Jubin-Tornow.

Canada and Jubin-Tornow disclose a predefined communication protocol with messages that contain the data content of the claimed "original data message" and "repeated data message" (of claims 1, 8, and 13), and Jubin-Tornow further discloses the "wireless transceiver associated with a remote device," "repeated data messaging" (claim 27), and "repeated data message" (claims 2, 9, and 14). These elements were old and well-known in the art as of the critical date of the '511 patent. In light of the reasons set forth by the patentee, and those otherwise apparent, one of skill would rely on Canada and Jubin-Tornow.

i. Wireless transceivers associated with remote devices configured to operate as stated in the claims.

During prosecution, the Applicant explained that his invention sought to solve the problem of how to extend the range of wireless transceivers associated with remote devices without the need for standalone repeaters. (Prange Decl. Ex. F (Appeal Br. at 2-396).) The Applicant's solution to this problem was to "integrate the repeat function within the wireless transceivers associated with remote devices" (*Id*.) such that "[e]ach wireless transceiver is configured to ***transmit a repeated data message***." (*Id*. (at 2-395) (emphasis in original).) Accordingly,

> [e]ach wireless transceiver associated with a remote device may receive and repeat data messages from other wireless transceivers associated with other remote devices. In this manner, the wireless communication system need not include as many repeaters because each transceiver associated with a remote device is configured to repeat data messages from other transceivers.

(*Id*.) Although the patentee perceived the solution as a new invention, one of skill in the art would find an obvious solution to the problem by combining Canada with Jubin-Tornow. Indeed, Canada itself could be modified in keeping with *KSR International*'s guidelines to achieve the same result.

Modifying Canada. It is doubtful that the Appeal during prosecution would have the same result had *KSR International* been decided. Solving the problem – extending the range of the wireless transceivers associated with remote devices without using standalone repeaters – is accomplished by adding the functionality of the repeaters in Canada (repeating messages) to the machine monitors. The machine monitor has the hardware (a wireless transceiver) that allows it to perform the function, and the repeat function continues, after combination, to operate the same. The result is extending the range of the machine monitors without the need for the repeaters. As the result is expected, this modification of Canada would be obvious. *KSR Int'l*, 127 S. Ct. at 1739.

Combining Canada and Jubin-Tornow. It is absolutely clear that if the packet radio of Jubin-Tornow is combined with the machine monitors of Canada, the claims are rendered obvious. Canada and Jubin-Tornow's disclosure are of old and well-known elements. Canada's machine monitor includes a device (a sensor) that is connected to a wireless transceiver. *See* '491 patent, 15:6-8. Jubin-Tornow also discloses a device connected to a wireless transceiver, the wireless transceiver identified as a packet radio. Jubin-Tornow at 22. Jubin-Tornow's packet radio uses a predefined communication protocol allowing for the sending of "original data messages" and "repeated data messages" with the data content required in the claims. (*See supra* section III.B.2.;

III.B.3.b.). Similarly, the disclosure also details the transmission of a "repeated data messaging" as disclosed in Claim 27. (*See supra* section III.B.2.).). Accordingly, the modification of Canada involves substituting Jubin-Tornow's packet radio transmission functionality with Canada's machine monitor transmission functionality, and when done the Jubin-Tornow packet radio transmission functionality performs the same function. In other words, the combination is of known prior art that, when combined, performs the same functions as they did in the prior art. *KSR Int'l*, 127 S. Ct. at 1740. The combination results in eliminating the need for repeaters in Canada because the communication range of the machine monitors is extended with the packet radio repeat functionality. This result is expected, and the combination is obvious. (Katz Decl. Ex. A (at ¶ 70).)

The obviousness of the modification of the art is further evidenced by the fact that it would be obvious to try the combination. To remove the repeaters from Canada, the repeaters' functionality must be performed by another device within the system. As the only other device that could perform the functionality is a machine monitor, and the reprogramming of the machine monitor would be within the technical grasp of the person of ordinary skill (*see id*. (at ¶ 24 (describing one of skill as being capable of designing and implimenting, and therefore programming, such systems), the individual "would have good reason to pursue the known option[.]" *KSR Int'l*, 127 S. Ct. at 1742. As it would be obvious to try it, and the result is expected, the '511 patent is only an obvious innovation.

One of skill would further rely on Jubin-Tornow to modify the data content transmitted in a repeated data message of a repeater. Canada discloses a repeater that receives "original data messages" from machine monitors and further repeats those messages. *See supra* section III.B.3.b.*i.* Jubin-Tornow presents a different predefined communication protocol, one in which the packet radio, operating as a repeater, includes its own identifier when repeating a message. *See supra* section III.B.3.b.*ii.*, *iii*. One of skill could take the additional functionality provided by Jubin-Tornow and include it in the repeater functionality of Canada without much difficulty, much like fitting together pieces of a puzzle. *KSR Int'l*, 127 S. Ct. 1742.

Canada does not teach away from its combination with Jubin-Tornow. Both Canada and Jubin-Tornow teach the implementation of separate predefined communications protocols for operating wireless communication networks. Plaintiffs, by their expert Knightly, assert that Canada teaches away from combination with Jubin-Tornow by reason of employing a time-synchronized communication protocol. (Prange Decl. Ex. J (at ¶¶ 50-53).) Contrary to Plaintiffs' assertion, Canada teaches *towards* its combination with Jubin-Tornow. Other predefined communications protocols may be appropriately used with the system in Canada:

> Although a time-division communication protocol, such as the one described above, is preferably employed to perform status polling of the monitors 4, a non-time division communication protocol can also be employed to perform status polling.

'491 patent, 13:26-30. Following this statement, Canada discusses the implementation of an unsynchronized protocol. *Id*. at 13:31-14:10. Thus, apart from the fact that it would

be "obvious to try" a combination of the packet radios of Jubin-Tornow and the machine monitors of Canada, the text of Canada itself refutes Plaintiffs' contention.

Other activities of those skilled in the art before the filing of the application for the '511 patent also confirm a motivation to combine the teachings of Canada and Jubin-Tornow. A separate group of UCLA researchers reported that "[l]ow power wireless sensor networks provide a new monitoring and control capability for civil and military applications in transportation, manufacturing, biomedical, environmental management, and safety and security systems." (Katz Decl. Ex. A (at ¶ 59)); K. Bult *et al.*, *Low Power Systems for Wireless Microsensors*, at Abstract. Reported in 1996, well before the critical date of the '511 patent, the reference reflects that there was awareness of combining sensors/actuators with wireless networks, and such a combination of technologies would lead to beneficial new systems. *Id*.

c. A wide area network and access via a remote host computer.

Like Shaughnessy, Jubin-Tornow also discloses a connection to a wide area network and a remote host computer connected to a wide area network. Jubin-Tornow at 22-23 (Section II.C & FIG. 4). The reasons set forth above regarding the combination of Shaughnessy and Canada are equally applicable to the combination of Jubin-Tornow and Canada, and are incorporated herein by reference.

d. The format of the data packet.

Like Shaughnessy, Jubin-Tornow in combination with knowledge generally known in the art also discloses the content of a transmitted data packet. Jubin-Tornow at 25-26 (Section IV.A-B). The reasons set forth above regarding the combination of

Shaughnessy and Canada are applicable for combining Canada and Jubin-Tornow in light of knowledge known to one of skill in the art, and are incorporated herein by reference.

e. Organizational access..

One of skill would also be motivated to combine Canada and Jubin-Tornow to resolve the problem of providing organization access to the claimed system. Similar to Shaughnessy, Jubin-Tornow discloses a system with access by multiple users. Jubin-Tornow at Fig. 4. As set forth above regarding the motivation to combine Shaughnessy and Canada, the reasons are equally applicable here and are incorporated herein by reference.

C. Secondary Considerations Of Nonobvious Do Not Create A Material Dispute Of Fact That Would Overcome The Strong *Prima Facie* Showing Of Obvious Demonstrated By The Combination Of Canada, Shaughnessy, And/Or Jubin-Tornow.

The Supreme Court's opinion in *Graham v. John Deere Company of Kansas City*, 383 U.S. 1, 17-18, 86 S. Ct. 684 (1966), set out a number of secondary considerations that may be considered when evaluating obviousness. Secondary considerations are only relevant, however, if the patentee proves a nexus between the merits of the claimed invention and evidence of secondary considerations. *See, e.g., Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1327 (Fed. Cir. 2008). Here, Plaintiffs' expert Dr. Knightly relies primarily on evidence consisting of Defendants' sales and gross margin for Turf Guard. (Prange Decl. Ex. J (at ¶¶ 88-90).) But when a strong prima facie showing of obviousness is made with the prior art, as here, evidence of secondary

considerations will not support a finding of non-obviousness. *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007)

Plaintiffs' reliance on Turf Guard's sales and margins mistakenly assumes that Turf Guard infringes the '511 patent. As Turf Guard does not infringe the claims of the '511 patent, Turf Guard's sales are irrelevant. *See, e.g., Relume Corp. v. Dialight Corp.*, 63 F.Supp.2d 788, 827 (E.D. Mich. 1999), *aff'd*, 4 Fed. Appx. 893 (Fed. Cir. 2001) ("because [the patentee] has failed to defeat defendants' motions for non-infringement…, it cannot rely on the well-substantiated success of defendants' accused products to prove the commercial success of its claimed features.").

There is no nexus whatsoever between Turf Guard's success and the claims of the '511 patent. As set forth in Defendants' Memorandum in support of their Motion for Summary Judgment of Noninfringement, Turf Guard functions differently from the claims of the '511 patent. Significantly, unlike the claims of the '511 patent, Turf Guard does not rely on a single device performing the function of both originating and repeating messages. Instead, like Canada, these functions are performed by separate components – the Turf Guard TG-2 Sensor Units originate messages, and Turf Guard Repeaters repeat the messages and extend the range of the Sensor Units. (Decl. of Dr. Jason L. Hill ("Hill Decl.") Ex. A. (at ¶ 77.) The Repeaters exist to perform the very function that the Applicant argued was eliminated by his invention. (Prange Decl. Ex. F (Appeal Br. at 2-396.)) Success of Turf Guard could not be attributed to performing the invention claimed in the '511 patent when Turf Guard is not structured to function as the claims are defined.

Confirming beyond doubt that Turf Guard is distinguishable from the "wireless transceivers" of the claims, Defendants modified Turf Guard to eliminate a feature necessary to Plaintiffs' infringement argument without any detriment to the system. Plaintiffs rely on the Repeaters' transmission of a "hop count," arguing that the hop count data constitutes a unique identifier of the Repeater. Notwithstanding the fact that hop count could not and is not a Repeater's unique identifier (as more fully discussed in Defendants' Memorandum in support of their Motion for Summary Judgment of Noninfringement), Defendants modified the Turf Guard source code shortly after Plaintiffs' disclosure of this argument. Now, Turf Guard Repeaters do not include hop count information. This change had no effect whatsoever on the functionality of the system. (Hill Decl. Ex. A (at ¶ 77).) Thus, Turf Guard's success is not based on the invention claimed in the '511 patent.

CONCLUSION

The Supreme Court instructs in *KSR International* that when claims "simply arrange old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious." *KSR Int'l*, 127 S. Ct. at 1740. Determining whether a patent is obvious requires the court to "ask whether the improvement is *more* than the predictable use of prior art elements according to their established functions." *Id.* at 1740 (italics supplied). Here the lone limitation that the Board found absent on appeal – a wireless transceiver that both originates and repeats messages – is found in Jubin-Tornow, a reference that the Board was not aware of and did not consider. Combining Jubin-

Tornow with Canada and Shaughnessy, where the element of Jubin-Tornow continues to function as it does in Jubin-Tornow, results in solving the problem that the Applicant asserted was solved by his invention. Namely, the machine monitors of Canada could enjoy extended range without the need of the repeaters. As the result of this change is entirely expected, the '511 patent is obvious. Defendants respectfully request that the Court grant its Motion, and find that claims 1, 2, 4, 8, 9, 11, 13, 14, 16, and 27 are invalid as being obvious.

Respectfully submitted,

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ATTORNEYS FOR DEFENDANTS THE TORO COMPANY, JLH LABS, LLC, AND JASON HILL

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

SIPCO LLC; and ADVANCED SENSOR TECHNOLOGY, INC., Plaintiffs, vs. THE TORO COMPANY, JLH LABS, LLC, and JASON HILL, Defendants.	Civil Action No. 08-CV-00505-TJS

DEFENDANTS' STATEMENT OF UNDISPUTED FACTS IN SUPPORT OF MOTION FOR SUMMARY JUDGMENT ON INVALIDITY

1. The application resulting in United States Patent No. 5,907,491 to Canada *et al.* (referenced as "Canada" or the " '491 patent") was filed on April 4, 1997. '491 patent at [22].[1]

2. The application resulting in United States Patent No. 6,141,347 to Shaughnessy *et al.* (referenced as "Shaughnessy" or the " '347 patent") was filed on March 31, 1999. '347 patent at [22].[2]

3. Canada and Shaughnessy were considered by the PTO as prior art during the prosecution of U.S. Patent No. 7,103,511. (*See, e.g.,* Prange Decl. Ex. F (Final Office Action 2-235 through 2-259, Dec. on Appeal 2-504 through 2-519).)

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[1] A copy of the '491 patent is attached as Exhibit B to the Declaration of David A. Prange ("Prange Decl."). A shortened notation is used for citation to column and line numbers in the patent, consisting of [column]:[line]. References are made directly to the patent.

[2] A copy of the '347 patent is attached as Exhibit C to the Prange Declaration. References are made directly to the patent.

4. The article titled "The DARPA Packet Radio Network Protocols" by John Jubin and Janet D. Tornow was published by the IEEE in *Proceedings of the IEEE*, Vol. 75, No. 1, in January 1987 (referenced as "Jubin-Tornow").[3]

5. The article titled "Low Power Systems for Wireless Microsensors" by K. Bult et al. was published in *Proceedings of the International Symposium on Low Power Electronics and Design (ISLPED)*, Monterey, California pp. 17-21 (August 12-14, 1996).[4]

6. A person of ordinary skill in the art is an engineer with experience equivalent to an undergraduate degree in electrical engineering, computer science, or computer engineering, with two years of industrial experience designing and implementing systems for monitoring and control of physical systems. (Decl. of Randy H. Katz Ex. A (at ¶ 24); Prange Decl. Ex. E (at ¶ 32-34).)

7. For asserted claims 1, 2, 4, 8, 9, 11, 13, 14, 16, and 27, Plaintiffs admit that Canada discloses all elements of the assert claims except for those identified in the following chart.

[3] A copy of the Jubin-Tornow article is attached as Exhibit D to the Prange Declaration. References are made directly to the article.

[4] A copy of the UCLA article is attached as Exhibit E to the Prange Declaration. Citations are made directly to the article.

Disputed Limitation	**Claim**	**Prior Art Disclosure**	**Discussed at**
wide area network	1, 8, 13, 27	Shaughnessy Jubin-Tornow Canada	5-9
a host computer connected to a wide area network	1, 8, 13	Shaughnessy Jubin-Tornow Canada	9-10
monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network	1, 8, 13	Canada Shaughnessy Jubin-Tornow	10-11
wireless transceiver (wireless transceiver means) associated with a remote device that originates and repeats messages with the claimed message content	1, 8, 13, 27	Canada Jubin-Tornow	11-15
site controller	1, 13, 27	Canada	15-19
a site controller that is in communication with at least one of the plurality of wireless transceivers	1, 27	Canada Jubin-Tornow	19

the site controller does not "receiv[e] original data messages or repeated data messages"	1, 27	Canada Jubin-Tornow	19-20
providing information related to the sensor data signal to the wide area network for delivery to the host computer	1, 27	Canada Shaughnessy Jubin-Tornow	20-21
a means for receiving each of the original data messages and the repeated data messages	8	Canada	21
a means for identifying, for each received message, the remote device associated with the corresponding sensor data signal	8	Canada	21
a means for providing information related to the sensor data signal to the wide area network for delivery to the host computer	8	Canada Shaughnessy Jubin-Tornow	22
at least one of the plurality of wireless transceivers is further configured to provide the original data messages and the repeated data messages to a site controller connected to the wide area network	13	Canada Jubin-Tornow	22-23
repeaters being in communication with at least one of the plurality of wireless transceivers	2, 9, 14	Canada Jubin-Tornow	23-26
repeaters (repeater means) that transmit repeated data messages with the claimed message content	2, 9, 14	Canada Jubin-Tornow	26-29
content of a data packet	4, 11, 16	Shaughnessy Canada Jubin-Tornow	29-31

customers	27	Shaughnessy	31
method for enabling customers to monitor remote devices via a wide area network (WAN)	27	Shaughnessy Jubin-Tornow Canada	31-32
enabl[ing] each of a plurality of customers to monitor at least one remote device via a wide area network	27	Shaughnessy Jubin-Tornow Canada	32
providing an organization access to the wireless communication network	27	Shaughnessy Jubin-Tornow Canada	32-34

(Prange Decl. Ex. G (Plaintiffs' Objections and Response to Defendants' Interrogatory No. 1 to Plaintiffs Dated February 18, 2009).)

"wide area network" (claims 1, 8, 13, and 27).

8. Shaughnessy discloses a "wide area network" and connection thereto as follows:

a. Figure 2, reproduced below:

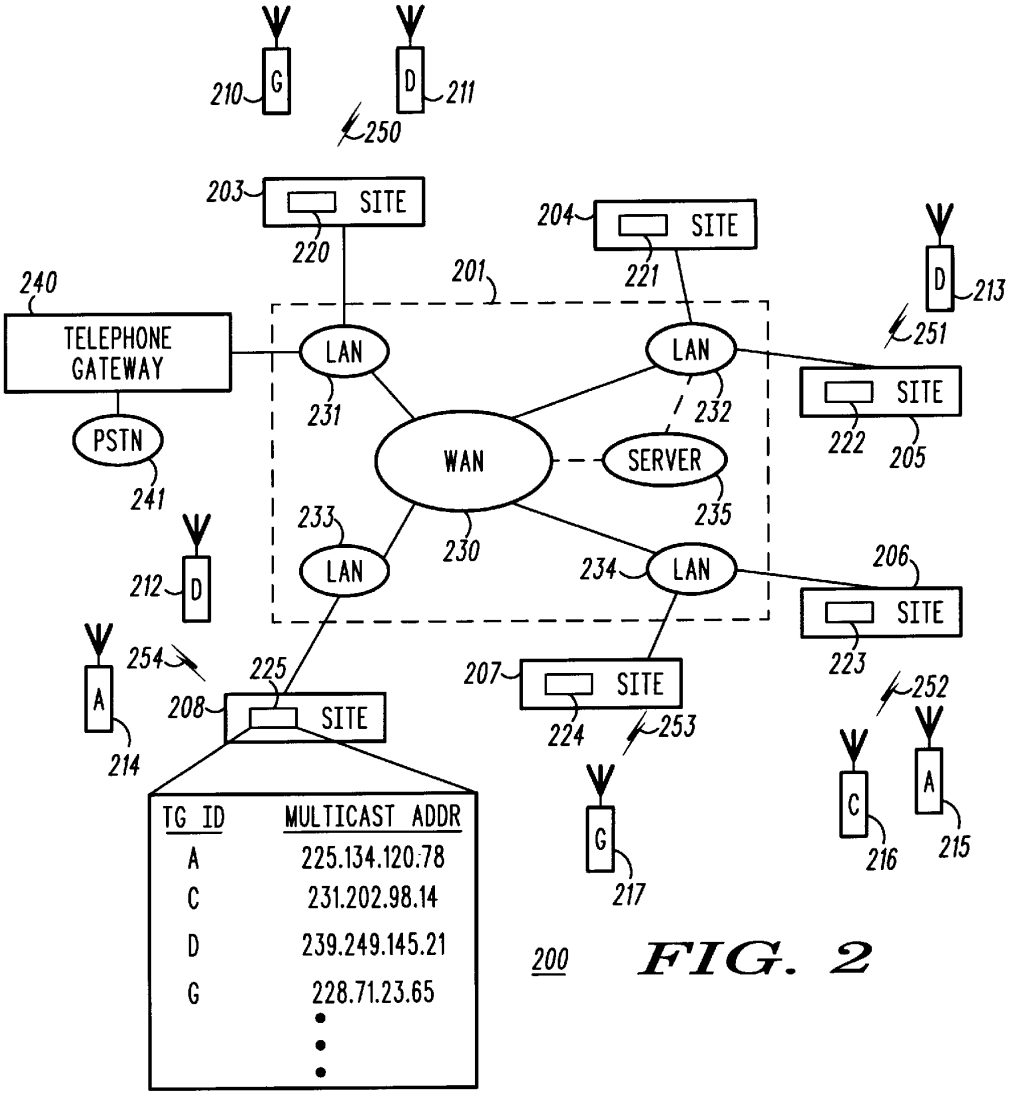


FIG. 2

b. "A wireless communication system 200 comprises a connectionless packet network 201 coupled to a plurality of sites 203-208 that are in wireless communication with a plurality of subscriber units 210-217." '347 patent, Abstract.

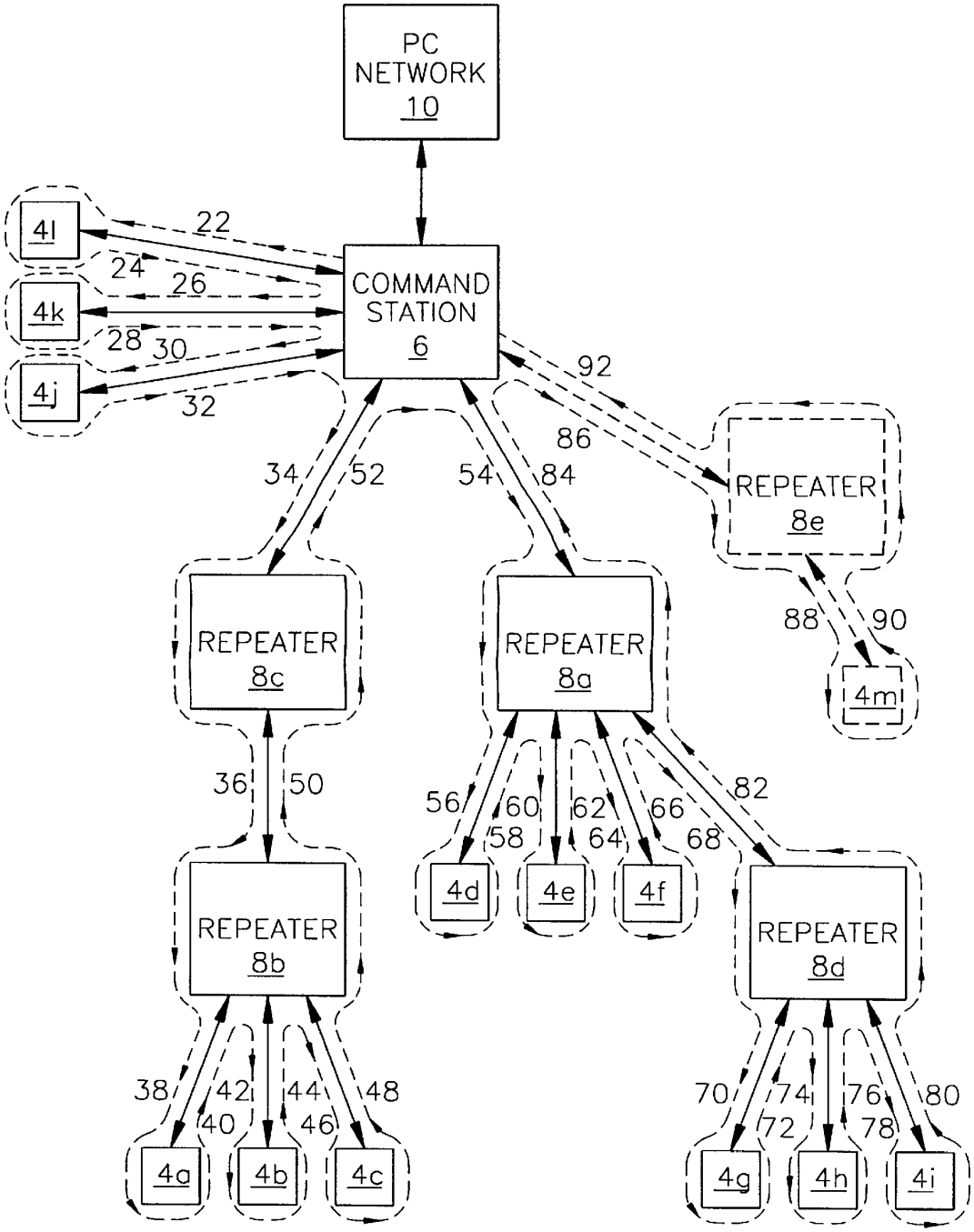
c. "FIG. 2 illustrates a wireless communication system 200 comprising a connectionless packet network 201 coupled to a plurality of sites 203-208, which sites are in communication, via wireless communication resources 250-254, with a plurality of subscriber units." *Id*. at 3:7-12.

d. "The connectionless packet network 201 comprises a wide area network (WAN) 230 coupled to one or more local area networks (LANs) 231-

> 234. … The network 201 may also comprise at least one server 235 coupled to either the WAN 230 or one of the LANs 231-234." *Id*. at 3:34-41.

9. Canada discloses a "wide area network" and connection thereto:

   a. Figure 8 of Canada, reproduced below, discloses a PC network 8.



10. Jubin-Tornow discloses a "wide area network" and connection thereto:

a. Figure 4, reproduced below, discloses a wide area network connected to a wireless communication network. The ARPANET is a wide area

network. The PRNET is a wireless communication network. Jubin-Tornow at 21-23 (Section II & FIG. 4).

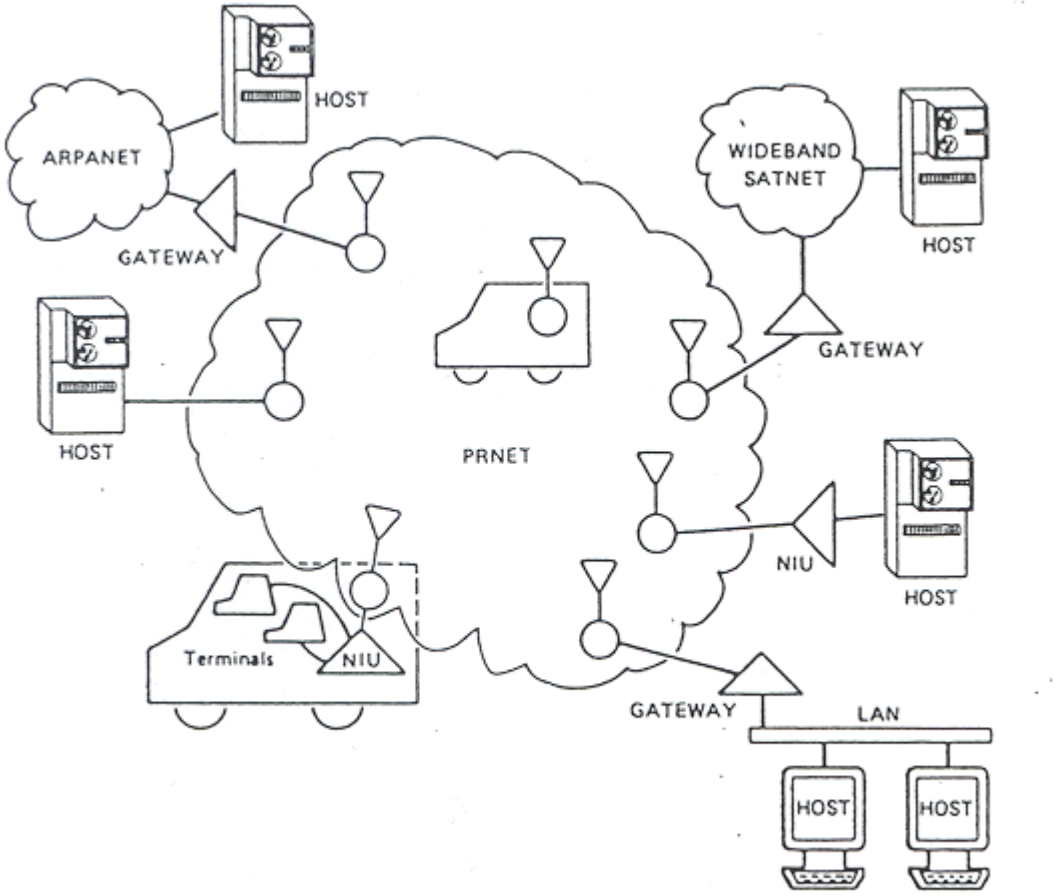


Fig. 4. Packet radio network in the Internet.

"host computer connected to a wide area network" (claims 1, 8, and 13).

11. Canada discloses a "host computer connected to a wide area network," as follows:

a. At Figure 8, reproduced above at paragraph 9, disclosing a PC network 10 that would include host computers.

b. "The command station 6 can be connected to a PC network 10 as shown in FIG. 8. When so connected, the command station 6 is able to transfer data and information directly to the PC network 10 for analysis and archival storage. The PC network 10 also enables an operator to reformat the time slice schedule 18 of FIG. 9." '491 patent, 8:6-11.

12. Shaughnessy discloses a "host computer connected to a wide area network," in part, as follows:

a. Shaughnessy discloses a wide area network connected to a local area network. *See* ¶ 8, *supra*.

13. Canada in view of Shaughnessy discloses a "host computer connected to a wide area network."

14. Jubin-Tornow discloses "a host computer connected to a wide area network" as follows:

a. Figure 4, reproduced above at paragraph 10, discloses a host computer (host) connected to a wide area network (ARPANET). Jubin-Tornow at 21-23 (Section II & FIG. 4).

15. The applicant for the '511 patent admits the prior art discloses a wide area network and a host computer connected to a wide area network:

a. "There are a variety of systems for monitoring and/or controlling any of a number of systems and/or processes, such as, for example, manufacturing processes, inventory systems, emergency control systems, personal security systems, residential systems, and electric utility meters to name a few. In many of these "automated monitoring systems," a host computer in communication with a wide area network monitors and/or controls a plurality of remote devices arranged within a geographic region. The plurality of remote devices typically use remote sensors and controllers to monitor and respond to various system parameters to reach desired results." '511 patent, 1:40-51.

"monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network" (claims 1, 8, 13).

16. Canada discloses "monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network" as follows:

a. Plaintiffs admit that Canada discloses "monitoring and controlling a plurality of remote devices. (*See* Prange Decl Ex. G (attachment at 1).)

b. "A wireless machine monitoring and communication system includes one or more machine monitors which attach to one or more machines to sense a physical characteristic of a machine … Each machine monitor includes a receiver and the command station includes a transmitter to enable the command station to send commands to each machine monitor." '491 patent, Abstract.

c. During prosecution, the Board of Interferences and Patent Appeals held that Canada disclosed that remote devices were monitored and controlled. (*See* Prange Decl. Ex. F (Dec. on Appeal at 2-513).)

d. Canada discloses a host computer connected to a wide area network. *See* ¶ 11, *supra.*

17. Canada in view of Shaughnessy discloses a host computer connected to a wide area network. *See* ¶¶ 12-13, *supra*.

18. Canada in view of Shaughnessy discloses "monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network."

19. Jubin-Tornow discloses a host computer connected to a wide area network. *See* ¶ 14, *supra*.

20. Canada in view of Jubin–Tornow discloses "monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network."

21. The applicant of the '511 patent admits to knowledge in the art. *See* ¶ 15, *supra*.

22. Canada in view of information known of the art, as admitted by the applicant of the '511 patent, discloses "monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network."

"wireless transceivers" and "wireless transceiver means" that both transmit original data messages and repeated data messages having the content defined for those messages (claims 1, 8, 13, and 27).

23. Canada discloses "wireless transceivers" and "wireless transceiver means" that transmit an original data message, as follows:

a. "The basic components of the system include: (1) one or more machine monitors 4 which are placed in various locations on, or in, one or more machines and which transmit wireless signals containing status data representative of the status of the machine and the status of the monitor … (2) a command station 6 which transmits commands and information to the machine monitors 4, receives data transmitted form the machine monitors 4, and formats the data as desired by an operator[.]" '491 patent, 4:41-53.

b. Figure 3 depicts a block diagram of a machine monitor:

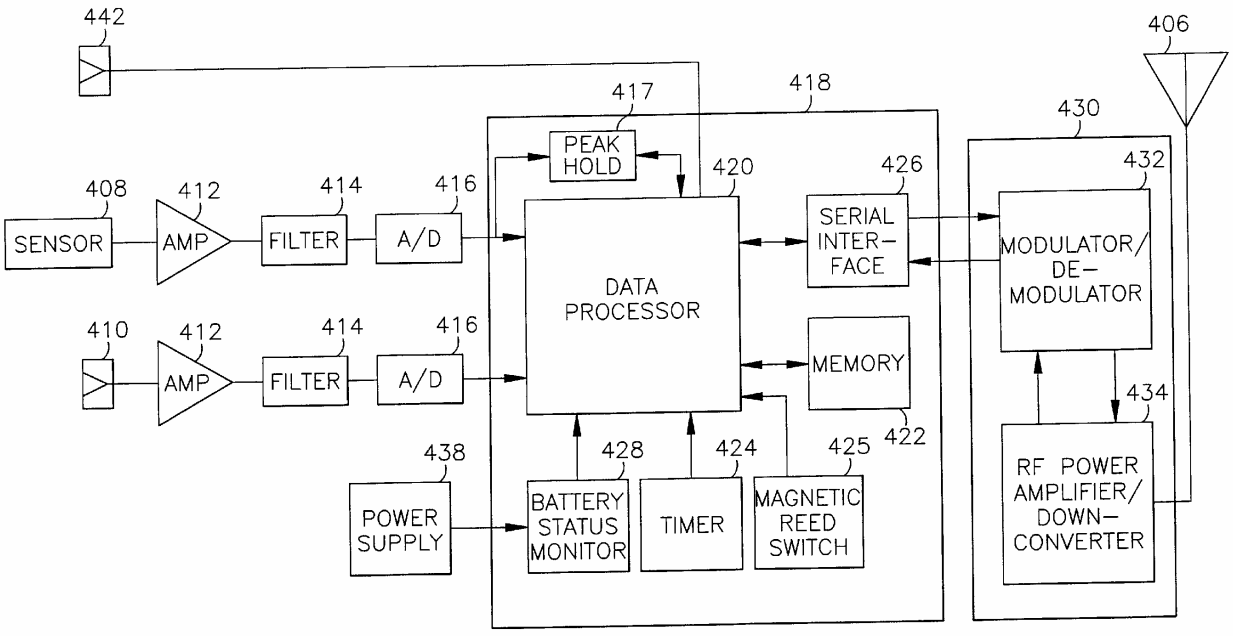


Fig. 3

c. "In FIG. 3, a functional block diagram of the machine monitor 4 of FIG. 1 is shown. Each machine monitor 4 contains at least one sensor 408 which is integrated with the machine monitor housing" *Id*. at 5:13-17.

d. "The sensor signals are amplified … and are then converted into digital format by an analog-to-digital converter 416[.]" *Id*. at 5:36-44.

e. "The digital signals are fed to a monitor computer 418 … The monitor computer also incorporates a memory 422[,] a timer 424, a serial interface 426[, and] a power supply 438, such as a replaceable "D-cell" flashlight battery provides the electrical power necessary for the functioning of the active elements of the machine monitor 4." *Id*. at 5:46-63.

f. "As shown in FIG. 3, a preferred embodiment incorporates a radio frequency (RF) transceiver 430 which performs data transmission as well as data reception. … [the message] is fed to an RF power amplifier circuit … which amplifies … into an RF signal to be transmitted from the antenna 406. The transceiver 430 also provides for receiving and decoding messages from the command station 6 which are transmitted to the machine monitor 4 in the form of RF signals" *Id*. at 15:6-19.

g. "A block diagram of the command station 6 of FIG. 1 is shown in FIG. 4. The RF signal transmitted from the machine monitor 4 is received[.]" *Id*. at 15:51-53.

h. "To enable the command station 6 to verify which machine monitor 4 is transmitting a data message, each machine monitor 4 transmits a unique identification code prior to the sensor data message. The identification code combined with the sensor data message comprise a data packet." *Id*. at 16:50-54.

24. Canada discloses repeaters that transmit a repeated data message as follows:

a. "If a particular machine is located such that machine monitors 4 placed on the machine are beyond the receiving range of the command station 6, or are out of the line of sight to the command station 6, a properly located repeater 8 is used to receive the signals form the machine monitors 4 and retransmit the signals to the command station 6." *Id*. at 4:61-67.

b. "The repeater's transceiver 808 and computer 812 are of the same type as, or are functionally equivalent to, the corresponding components of the machine monitor 4. In a preferred embodiment, the operation of the repeater 8 is "transparent" to the other components of the system, that

is, the other components function in the same manner as they would if the repeater 8 were unnecessary and not in the system." *Id*. at 18:28-35.

25. Canada by modification of its own disclosure discloses "wireless transceivers" and "wireless transceiver means" that both transmit original data messages and repeated data messages having the content defined for those messages.

26. Jubin-Tornow discloses "wireless transceivers" and "wireless transceiver means" that both transmit original data messages and repeated data messages having the content defined for those messages as follows:

a. A packet radio "has been designated the Low-cost Packet Radio (LPR) [5], Fig. 1. The LPR consists of both digital and RF subsystems. It is capable of omnidirectional, spread-spectrum, half-duplex transmission/reception at 400- and 100-kbit/s data rates. … The digital subsystem controls the routing and flow of packets between PRs while the RF subsystem transmits and receives packets over the radio channel." Jubin-Tornow at 22 (Section II.C).

b. "The PR receives packets of data either from its wire interface or from the radio channel." *Id*.

c. "Each PR is responsible for receiving a packet and relaying it on to a PR that is one hop closer to the final destination." *Id*.

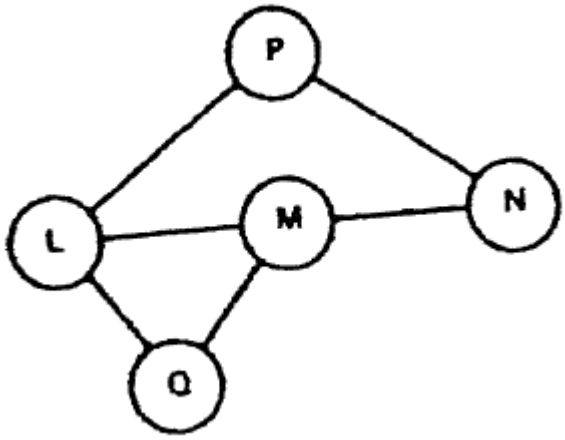
d. "The packets can be routed either to another PR over the radio channel or to an attached device (i.e. host computer or terminal) via the wire interface." *Id*.

e. "The protocols that run in the PRs encompass the Physical Data Link, and Network layers, as defined in ISO's Open Systems Interconnection Reference Model [6]." *Id*.

f. "A host computer may be directly interfaced to a PR." *Id*.

g. See Figure 4 of Jubin-Tornow, reproduced above in paragraph 10.

h. See Figure 2 of Jubin-Tornow, reproduced below:



i. "[I]n Fig. 2, a connecting line indicates which PRs are within line-of-sight of each other. Since PRs *L, M,* and *Q* are all within line-of-sight of *M*, a transmission by *M* can be received by all of these PRs; they are said to be one hop away from *M*." *Id*.

j. "After a PR (say PR *L* in Fig. 2) has been powered on, and has loaded its protocol software into RAM, it begins the process of establishing and maintaining local connectivity." *Id*. at 23.

k. "Every packet transmitted by every PR contains several headers … The packet headers at are of concern to this paper are the end-to-end (ETE) header and the routing header." *Id*. at 25 (Section IV.A).

l. "The ETE header is created by the source device. It contains the source device ID … and the destination device ID, which is used in forwarding (Section IV-B). The ETE header stays on the packet from its creation by the source device throughout its forwarding through the PRNET including its delivery to the destination device." *Id*. at 25 (Section IV.A).

"site controller" (claims 1, 13, 27).

27. Canada discloses a "site controller" that "manage[s] and relay[s] data between the wireless transceivers and the wide area network," as follows:

a. See Figure 8 of Canada, reproduce above in paragraph 9.

b. "The command station 6 can be connected to a PC network 10 as shown in FIG. 8. When so connected, the command station 6 is able to transfer

data and information directly to the PC network 10 for analysis and archival storage. The PC network 10 also enables an operator to reformat the time slice schedule 18 of FIG. 9." '491 patent, 8:6-11.

c. "The basic components of the system include: … (2) a command station 6 which transmits commands and information to the machine monitors 4, receives data transmitted from the machine monitors 4, and formats the data as desired by an operator[.]" *Id*. at 4:50-54.

d. "During the first time slice 22, the command station 6 transmits a status request to monitor 41, and monitor 41 responds by transmitting the requested status information to the command station 6 during time slice 24. Preferably, the status request transmitted by the command station 6 will include instructions for which data and which functions the monitor 41 is to perform." *Id*. at 7:28-34.

e. "Special requests for data sensing, data analysis, data transmission, and data storage can also be transmitted by the command station 6 to one or more monitors 4." *Id*. at 7:56-58.

f. "The command station 6 looks at the results of the status poll responses. When it is discovered that a device did not respond to the status request, the command station 6 will continue normal status polling for 15 minutes to allow time for the lost device to resynchronize. If the resynchronization is not successful within 15 minutes … the command station 6 assumes that the communication path is blocked and signals the blocked condition to the user. To compensate, the command station 6 selects a group of repeaters 8 and sends them a command to be relayed to the lost device during their time slices. Within this command, the command station 6 requests a transmission strength scan to be performed by the lost device at a specified time Tx. At the specified time, all selected repeaters 8 listen for a fixed amount of time, after which the repeaters 8 send the results of the strength scan to the command station 6. the command station 6 selects one repeater 8 from those which indicated positive results of the strength scan and commands the selected repeater 8 to perform its transmission scan with encoded best transmission strength of the lost device at time Tx+60 seconds. After this scan has completed, the lost device replies to its new repeater 8 and sends its best transmission strength. The new repeater 8 acknowledges the lost device's transmission by information it that its temporary status poll slice will be the ICU time slot of the new repeater 8. After synchronization of the lost device with the new repeater 8, the command station 6 sends the Re-configuration poll command to make a permanent time slice for the lost device." *Id*. at 14:11-41.

g. "In an alternate procedure for compensating for a blocked device, the command station 6 maintains a Re-Configuration Look-Up Table in which a list is maintained for all devices that each repeater 8 can communicate with at any given time. When a device becomes lost due to blocked communication, the command station 6 reassigns the lost device to a new repeater." *Id*. at 14:42-48.

h. "A block diagram of the command station 6 of FIG. 1 is shown in FIG. 4. The RF signal transmitted form the machine monitor 4 ris received by an antenna 602 at the command station 6. A transceiver 604, which includes an RF power amplifier/down-converter circuit 606 and a modulator/demodulator circuit 608, such as those previously discussed in the description of the machine monitor 4, downconverts and demodulates the RF signal to recover the digital sensor data. The sensor data is fed over a serial interact 610 to a command station computer 612, such as a personal computer incorporating a Pentium processor or equivalent, where the information is preferably monitored in real-time for machine fault conditions and is entered into a data base for off-line trend analysis The transmit circuits of the command station transceiver 604, provide for the transmission of timing, scheduling, and programming messages to the machine monitor 4." *Id*. at 15:51-67.

i. "The repeater 8 of FIG. 1 is shown in block diagram form in FI. 7. The RF sensor data message from a machine monitor 4 is received by the antenna 802, converted down to IF by the down-converter circuit 804, and demodulated by the modulator/demodulator circuit 806 to recover the original baseband sensor data. The sensor data is then passed over the serial interface 810 of the repeater computer 812 to the data processor 814. The sensor data is then either stored in memory 816 or is passed to the modulator/demodulator circuit 806 and the RF power amplifier/down-converter circuit 804 of the repeater transceiver 808 to create a "new" RF sensor data signal. This signal is transmitted form the repeater antenna 802 to the command station 6." *Id.* at 18:8-22.

j. Figure 4, reproduced below:

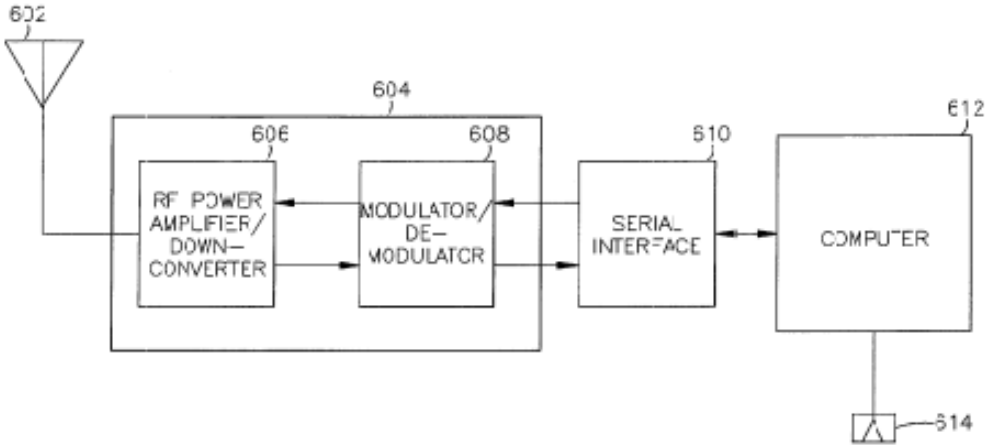


Fig. 4

28. For the command station to be in communication with a wide area network, one of skill in the art would know that the command station requires a network interface device. These network interface devices are admitted by the Applicant as being commonly known in the art:

a. "The site controller 150 may also include on or more network interface devices 408 to facilitate via WAN 120. For example, the site controller 150 may include a network card, which may allow the site controller 150 to communicate across a local area network to a network server. This network server may function as a backup site controller 150 to the WAN 120. Alternatively, the site controller 150 may contain a DSL modem, which may be configured to provide a link to a remote computing system by way of the public switched telephone network (PSTN). In yet another embodiment, the site controller 150 may include an ISDN card configured to communicate via an ISDN connection with a remote system. One of ordinary skill in the art will appreciate that various other communication interfaces may be provided to serve as primary and/or backup links to the WAN 120 (FIG. 1) or to local area networks that might serve to permit local monitoring of the status of the

site controller 150 and for data packet control." *See* '511 patent at 11:57-12:7.

"a site controller that is in communication with at least one of the plurality of wireless transceivers" (claims 1 and 27).

29. Canada discloses "a site controller that is in communication with at least one of the plurality of wireless transceivers":

a. Canada discloses wireless transceivers. *See* ¶¶ 23-25, *supra*.

b. Canada discloses a site controller. *See* ¶¶ 27-28, *supra.*

c. See Figure 8 of Canada, reproduce above in paragraph 9, disclosing a command station (site controller) being in communication with a machine monitor (wireless transceiver).

30. Jubin-Tornow discloses "a site controller that is in communication with at least one of the plurality of wireless transceivers," in part, by disclosing wireless transceivers. *See* ¶ 26, *supra.*

31. Canada in view of Jubin-Tornow discloses "a site controller that is in communication with at least one of the plurality of wireless transceivers."

The site controller does not "receiv[e] original and repeated data messages from a wireless transceiver" (claims 1 and 27).

32. Canada discloses a site controller that "receiv[es] original and repeated data messages from a wireless transceiver" as follows:

a. Canada discloses wireless transceivers that send original data messages and repeated data messages. *See* ¶¶ 23-25, *supra.*

b. Canada discloses a site controller receiving original data messages and repeated data messages from a wireless transceiver. *See* ¶ 27, *supra.*

c. See Figure 8 of Canada, reproduce above in paragraph 9, disclosing a command station (site controller) being in communication with a machine monitor (wireless transceiver).

33. Jubin-Tornow discloses a site controller that "receiv[es] original and repeated data messages from a wireless transceiver," in part, by disclosing wireless transceivers that send original data messages and repeated data messages. *See* ¶ 26, *supra*.

34. Canada in view of Jubin-Tornow discloses a site controller that "receiv[es] original and repeated data messages from a wireless transceiver."

The site controller does not "provid[e] information related to the sensor data signal to the wide area network for delivery to the host computer."

35. Canada discloses the site controller "providing information related to the sensor data signal to the wide area network for delivery to the host computer" as follows:

a. "The command station 6 can be connected to a PC network 10 as shown in FIG. 8. When so connected, the command station 6 is able to transfer data and information directly to the PC network 10 for analysis and archival storage. The PC network 10 also enables an operator to reformat the time slice schedule 18 of FIG. 9." '491 patent, 8:6-11.

b. Canada discloses a site controller. *See* ¶ 27, *supra*.

c. Canada discloses a host computer connected to a wide area network. *See* ¶ 11, *supra.*

36. Canada in view of Shaughnessy discloses a host computer connected to a wide area network. *See* ¶¶ 11-13, *supra*.

37. Canada in view of Shaughnessy discloses the site controller "providing information related to the sensor data signal to the wide area network for delivery to the host computer."

38. Jubin-Tornow discloses a host computer connected to a wide area network. *See* ¶ 14, *supra*.

39. Canada in view of Jubin-Tornow discloses the site controller "providing information related to the sensor data signal to the wide area network for delivery to the host computer."

"a means for receiving each of the original data messages and the repeated data messages" (claim 8).

40. Canada discloses "a means for receiving each of the original data messages and the repeated data messages" as follows:

a. Canada discloses the structure that performs the identified function. *See* ¶ 27, *supra*.

b. One of ordinary skill in the art would know that a computer possesses a power supply in order to function.

"a means for identifying, for each received message, the remote device associated with the corresponding sensor data signal" (claim 8).

41. Canada discloses "a means for identifying, for each received message, the remote device associated with the corresponding sensor data signal" as follows:

a. Canada discloses the structure that performs the identified function. *See* ¶ 27, *supra*.

b. One of ordinary skill in the art would know that a computer possesses a power supply in order to function.

c. "To enable the command station 6 to verify which machine monitor 4 is transmitting a data message, each machine monitor 4 transmits a unique identification code prior the sensor data message. … The identification code is stored within the machine monitor 4 by means such as a set of DIP switches or a non-volatile RAM, the state of which determines the value of the identification code to be stored in the monitor computer memory. The identification cod transmitted by the machine monitor 4 is received by the command station 6, and the command station computer 612 compares the code to values stored in a table within the command station computer 612." '491 patent, 16:50-62.

"a means for providing information related to the sensor data signal to the wide area network for delivery to the host computer" (claim 8).

42. Canada discloses " a means for providing information related to the sensor data signal to the wide area network for delivery to the host computer" as follows:

a. Canada discloses the structure that performs the identified function. *See* ¶ 27, *supra*.

b. Canada discloses a host computer connected to a wide area network. *See* ¶ 11, *supra.*

c. One of ordinary skill in the art would know that a computer possesses a power supply in order to function.

d. One of ordinary skill in the art would know a network interface device is needed to communicate with the wide area network. Network interface devices are know to one of ordinary skill in the art. *See* Jubin-Tornow at 22 (disclosing a network interface device).

e. The applicant of the '511 patent admits that one of ordinary skill in the art is aware of a network interface device: "The site controller 150 may also include one or more network interface devices 408 to facilitate via WAN 120. For example, the site controller 150 may include a network card, which may allow the site controller 150 to communicate across a local area network to a network server. This network server may function as a backup site controller 150 to the WAN 120. Alternatively, the site controller 150 may contain a DSL modem, which may be configured to provide a link to a remote computing system by way of the public switched telephone network (PSTN). In yet another embodiment, the site controller 150 may include an ISDN card configured to communicate via an ISDN connection with a remote system. One of ordinary skill in the art will appreciate that various other communication interfaces may be provided to serve as the primary and/or backup links to the WAN 120 (FIG. 1) or to local area networks that might serve to permit local monitoring of the status of the site controller 150 and for data packet control." '511 patent, 11:57-12:7.

"at least one of the plurality of wireless transceivers further configured to provide the original data messages and the repeated data messages to a site controller connected to the wide area network" (claim 13).

43. Canada discloses "at least one of the plurality of wireless transceivers further configured to provide the original data messages and the repeated data messages to a site controller connected to the wide area network" as follows:

a. Canada discloses wireless transceivers that transmit original data messages and repeated data messages. *See* ¶¶ 23-25, *supra.*

b. Canada discloses a site controller receiving original data messages and repeated data messages from a wireless transceiver. *See* ¶ 27, *supra.*

c. See Figure 8 of Canada, reproduce above in paragraph 9, disclosing a command station (site controller) being in communication with a machine monitor (wireless transceiver).

44. Jubin-Tornow discloses "at least one of the plurality of wireless transceivers further configured to provide the original data messages and the repeated data messages to a site controller connected to the wide area network," in part, by disclosing wireless transceivers that transmit original data messages and repeated data messages. *See* ¶ 26, *supra*.

45. Canada in view of Jubin-Tornow discloses "at least one of the plurality of wireless transceivers further configured to provide the original data messages and the repeated data messages to a site controller connected to the wide area network."

"repeaters [(repeating means)] being in communication with at least one of the plurality of wireless transceivers [(wireless transceiver means)]"

46. Canada discloses "repeaters [(repeating means)] being in communication with at least one of the plurality of wireless transceivers [(wireless transceiver means)]" as follows:

a. Canada discloses wireless transceivers and repeaters. *See* ¶ 23-25, *supra.*

b. "If a particular machine is located such that machine monitors 4 placed on the machine are beyond the receiving range of the command station 6, or are out of the line of sight to the command station 6, a properly located repeater 8 is used to receive the signals form the machine monitors 4 and retransmit the signals to the command station 6." '491 patent, 4:61-67.

c. See FIG. 1 of Canada, disclosing repeaters in communication with machine monitors:

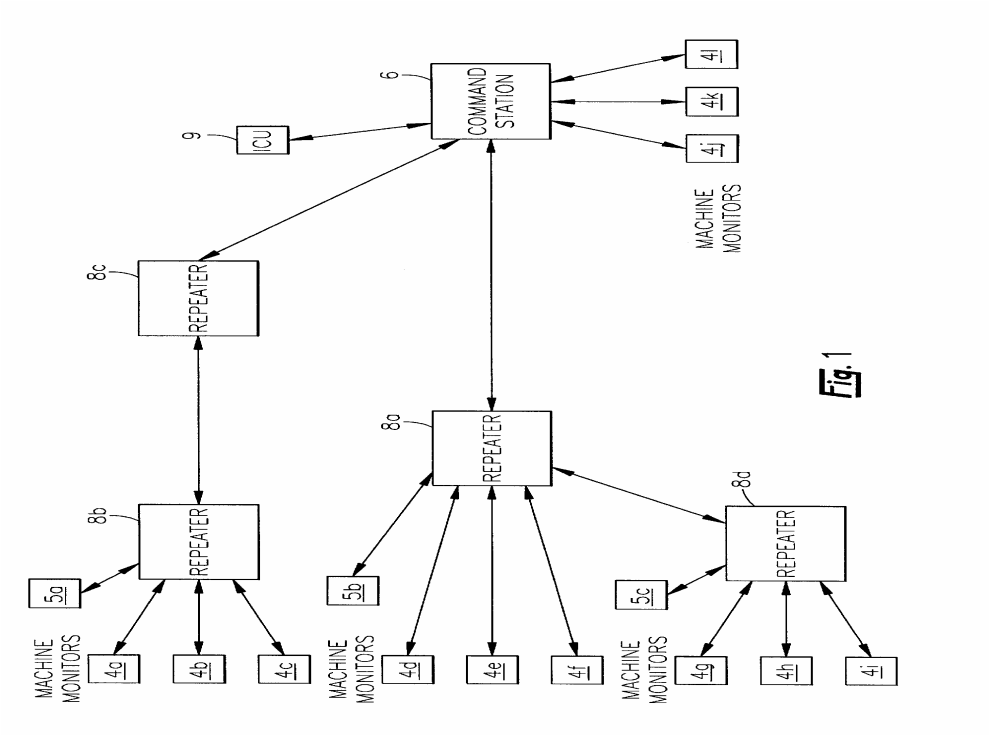


Fig. 1

d. See FIG. 7 of Canada, disclosing a block diagram of a repeater.

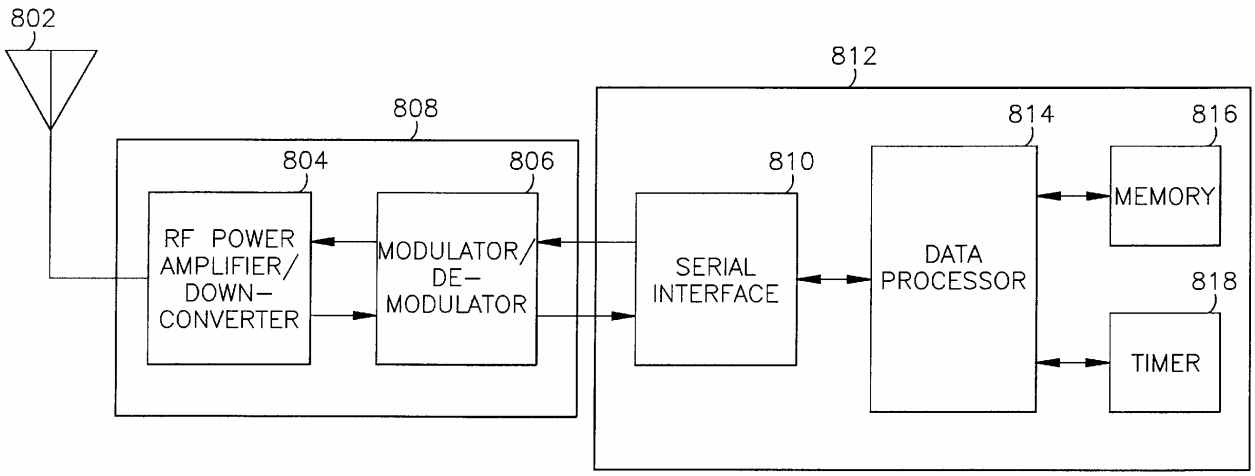


Fig. 7

e. "The RF sensor data message from a machine monitor 4 is received by the antenna 802 … The sensor data is then passed over the serial interface 810 of the repeater computer 812 to the data processor 814. The sensor data is then either stored in memory 816 or is passed to … the repeater transceiver 808 to create a 'new' RF sensor data signal." *Id*. at 18:8-22.

47. Jubin-Tornow discloses "repeaters [(repeating means)] being in communication with at least one of the plurality of wireless transceivers [(wireless transceiver means)]" as follows:

a. Jubin-Tornow discloses wireless transceivers. *See* ¶ 26, *supra.*

b. A packet radio "has been designated the Low-cost Packet Radio (LPR) [5], Fig. 1. The LPR consists of both digital and RF subsystems. It is capable of omnidirectional, spread-spectrum, half-duplex transmission/reception at 400- and 100-kbit/s data rates. … The digital subsystem controls the routing and flow of packets between PRs while

the RF subsystem transmits and receives packets over the radio channel." Jubin-Tornow at 22 (Section II.C).

c. "The PR receives packets of data either from its wire interface or from the radio channel." *Id*.

d. "Each PR is responsible for receiving a packet and relaying it on to a PR that is one hop closer to the final destination." *Id*.

e. "After a PR (say PR *L* in Fig. 2) has been powered on, and has loaded its protocol software into RAM, it begins the process of establishing and maintaining local connectivity." *Id*. at 23.

f. See Figure 2 of Jubin-Tornow, reproduced at paragraph 26 above.

g. "[I]n Fig. 2, a connecting line indicates which PRs are within line-of-sight of each other. Since PRs *L, M,* and *Q* are all within line-of-sight of *M*, a transmission by *M* can be received by all of these PRs; they are said to be one hop away from *M*." *Id*.

Repeaters [repeater means] "configured to receive the original data message transmitted by the at least one of the plurality of wireless transceivers [(wireless transceiver means)] and transmit a repeated data message using the predefined communication protocol, the repeated data message including the sensor data signal from the original data message and the unique identifier corresponding to the repeater [(repeater means)]" (claims 1, 8, 13)

48. Canada discloses repeaters (repeater means) "configured to receive the original data message transmitted by the at least one of the plurality of wireless transceivers [(wireless transceiver means)] and transmit a repeated data message using the predefined communication protocol, the repeated data message including the sensor data signal form the original data message and the unique identifier corresponding to the repeater [(repeater means)]," in part, as follows:

a. Canada discloses a repeater that receives original data messages and transmits repeated data messages. *See* ¶¶ 23-25, 46, *supra*.

b. Canada discloses a wireless transceiver that transmits original data messages. *See* ¶¶ 23-25, *supra*.

49. Jubin-Tornow discloses repeaters (repeater means) "configured to receive the original data message transmitted by the at least one of the plurality of wireless transceivers [(wireless transceiver means)] and transmit a repeated data message using the predefined communication protocol, the repeated data message including the sensor data signal form the original data message and the unique identifier corresponding to the repeater [(repeater means)]" as follows:

a. Jubin-Tornow discloses a repeater that receives an original data message and transmits a repeated data message. *See* ¶ 26, *supra*.

b. Jubin-Tornow discloses a wireless transceiver that transmits an original data message. *See* ¶ 26, *supra.*

c. Jubin-Tornow at 25 discloses a "routing header" which includes the following fields:

Routing Header Field	Protocol Function Used In	Section Described In
Source PR ID	acknowledgment	IV-B
	alternate routing	IV-D
Sequence number	acknowledgment	IV-B
	alternate routing	IV-D
Speech type-of-service flag	transmission	V-D
Previous PR ID	acknowledgment	IV-B
Previous PR's transmit count	pacing	V-A
Transmitting PR ID	acknowledgment	IV-B
Transmitting PR's transmit count	pacing	V-A
Next PR ID	forwarding	IV-B
	acknowledgment	IV-B
	pacing	V-A
Lateral alternate routing flag	alternate routing	IV-D
Alternate routing request flag	alternate routing	IV-D
Tier	alternate routing	IV-D
Destination PR ID	forwarding	IV-B
	alternate routing	IV-D

d. The routing header includes the value of the transmitting PR ID, the identifier of the packet radio repeating the message. Jubin-Tornow at 25 (Section IV.A).

e. The inclusion of the forwarding packet radio is confirmed in the transmission steps illustrated at page 26 of Jubin-Tornow, wherein packet radio M is forwarding message and includes its own unique identifier:

Device 1
Sets, in FTE header, destination device ID = 2.
Wire-transmits the packet.
PR *L*
Receives packet.
Sets, in routing header:
destination PR ID = *N* (from device table)
previous PR ID = ϕ (signifies an attached device)
transmitting PR ID = *L*
next PR ID = *M* (from tier table)
tier = 2 (from tier table)
Radio-transmits the packet.
PR *M*
Receives packet.
Determines, from next PR ID = *M* in routing header, that it should process the packet.
Sets, in routing header:
previous PR ID = *L*
transmitting PR ID = *M*
next PR ID = *N* (from tier table)
tier = 1 (from tier table)
Radio-transmits the packet.
PR *N*
Receives packet.
Determines, from next PR ID = *N* in routing header, that it should process the packet.
Determines, from destination PR ID = *N* in routing header, that packet is at the destination PR.
Determines, from destination device ID = 2 in ETE header and from device table, that packet should be wire-transmitted.
Wire-transmits the packet.
Sets, in routing header:
previous PR ID = *M*
transmitting PR ID = *N*
next PR ID = ϕ
tier = ϕ
Radio-transmits the routing header (done for acknowledgment purposes, explained in the next section).
Device 2
Receives packet.

50. Canada in view of Jubin-Tornow discloses repeaters (repeater means) "configured to receive the original data message transmitted by the at least one of the plurality of wireless transceivers [(wireless transceiver means)] and transmit a repeated

data message using the predefined communication protocol, the repeated data message including the sensor data signal form the original data message and the unique identifier corresponding to the repeater [(repeater means)]."

"a data packet comprising: a receiver address [a means for] identifying the receiver of the data packet; a sender address [a means for] identifying the sender of the data packet; and a command indicator [command means] specifying a predefined command code" (claims 1, 8, 14)

51. Shaughnessy discloses "a data packet comprising: a receiver address identifying the receiver of the data packet; a sender address identifying the sender of the data packet; and a command indicator specifying a predefined command code" as follows:

a. "The base stations 403-405 wirelessly communicate with subscriber units using well-known techniques. The base stations receive affiliation messages from subscriber units wishing to affiliate with the site 400. Identifications of talk groups that a subscriber unit is currently affiliated with can be included in such affiliation messages. These talk group identifications are passed to the controller 401 via local area network 409 for storage in the memory 411 When the mappings between talk group identifications and multicast addresses are stored in the subscriber units, the base stations also receive multicast addresses form the subscriber units for routing to the controller 401. Further still, when the mappings are stored within the network itself, the controller 401 can access the appropriate point within the network to ascertain the necessary multicast addresses. Regardless of where the mappings between talk group identifications and multicast addresses are maintained, the multicast router 407 controls the flow of all traffic between the site 400 and the packet network based in part upon the multicast addresses." '347 patent, 5:14-32.

b. "In the preferred embodiment, the steps illustrated in FIG. 6, where applicable, are implemented as software routines executed by a site controller, base stations or any other elements contributing to the operation of a site, including the multicast router 407. At step 601, the site receives an affiliation message, via a base station, from a subscriber unit. The affiliation message includes at least one talk group

identification indicating that the subscriber unit is currently affiliated with one or more talk groups. As described above relative to FIG. 5, the site may also receive at least one multicast address uniquely associated with each of the e at least one talk group identifications." *Id*. at 6:34-45.

c. "If received from the subscriber unit, the at least one multicast address can be included in the affiliation message or in subsequent control messages." *Id*. at 6:45-48.

52. Canada discloses "a data packet comprising: a receiver address identifying the receiver of the data packet; a sender address identifying the sender of the data packet; and a command indicator specifying a predefined command code":

a. "To illustrate how data is transmitted form a monitor 4 to the command station 6 during non-time division communication, assume that monitor 4c shown in FIG. 8 transmitted an alarm message during a status poll. The communication chain, assuming no blockage of repeaters 8, includes repeaters 8b and 8c. Following the status poll in which monitor 4c indicates an alarm condition, the command station 6 transmits a request for data to repeater 8c, which powers up to listen for command signals at a predetermined time following status polling. Repeater 8c transmits ACK [(acknowledgement)] to the command station 6 and repeats or transmits the data request to repeater 8b. Repeater 8c transmits ACK to repeater 8b to acknowledge proper receipt of the data request and transmits the data request to monitor 4c. After repeating the data request, each repeater 8b, 8c remains on in asynchronous fashion and waits for transmission of the requested data. The repeaters 8b, 8c do not turn off until the requested data has been received and retransmitted to the next repeater or to the command station 6." '491 patent at 13:59-14:10.

53. Jubin-Tornow discloses "a data packet comprising: a receiver address [a means for] identifying the receiver of the data packet; a sender address [a means for] identifying the sender of the data packet; and a command indicator [command means] specifying a predefined command code" as follows:

a. At page 25, Jubin-Tornow discloses the content of fields contained in a routing header. The table is reproduced above at paragraph 49.

b. One of ordinary skill in the art would know that an identifier for a packet radio could be a MAC address, which is a unique address of a packet radio in a wireless communication network. (Katz Decl. Ex. A (at ¶ 45).)

c. One of ordinary skill in the art would know that a command indicator or command means would be included within the data packet payload. (*Id*. (at 41-42, 47-48).)

"customers" (claim 27).

54. Shaughnessy discloses "customers" as follows:

a. See FIG. 2. of Shaughnessy, reproduced above in paragraph 8, disclosing a wide area network to which subscriber units are connected.

b. "A wireless communication system 200 comprises a connectionless packet network 201 coupled to a plurality of sites 203-208 that are in wireless communication with a plurality of subscriber units 210-217. '347 patent, Abstract.

55. The '511 patent discloses customers of wireless communication systems and automated monitoring systems:

a. "Recognizing that consumers will soon demand interoperability between household systems, appliances, and computing devices, the Electronics Industry Association (EIA) has adopted an industry standard, known as the Consumer Electronics Bus (CEBus)." '511 patent, 1:67-2:4.

"method for enabling customers to monitor remote devices via a wide area network (WAN)" (claim 27).

56. Canada in view of Shaughnessy or Jubin-Tornow discloses "method for enabling customers to monitor remote devices via a wide area network (WAN)" in part, as follows:

a. Canada in view of Shaughnessy discloses monitoring remote devices via a wide area network. *See* ¶¶ 16-18, *supra*.

b. Canada in view of Jubin-Tornow discloses monitoring remote devices via a wide area network. *See* ¶¶ 16, 19-20, *supra*.

57. Shaughnessy discloses "method for enabling customers to monitor remote devices via a wide area network (WAN)," in part, as follows:

a. Shaughnessy discloses customers. *See* ¶ 54, *supra*.

b. Shaughnessy discloses enabling customers. *See* ¶ 59, *infra.*

58. Canada in view of Shaughnessy or Jubin-Tornow discloses "method for enabling customers to monitor remote devices via a wide area network (WAN)."

"enabl[ing] each of a plurality of customers to monitor at least one remote device via a wide area network" (claim 27).

59. Shaughnessy discloses "enabl[ing] each of a plurality of customers to monitor at least one remote device via a wide area network," in part, as follows:

a. Shaughnessy discloses customers. *See* ¶ 54, *supra*.

b. Shaughnessy discloses subscriber units that are enabled to use a broader system, as illustrated in Figure 2 of Shaughnessy, reproduced above at paragraph 8.

60. Canada, in view of Shaughnessy or Jubin-Tornow or the '511 patent, discloses "enabl[ing] each of a plurality of customers to monitor at least one remote device via a wide area network," in part, by disclosing monitoring at least one remote device via a wide area network. *See* ¶¶ 16-22, *supra*.

61. Canada, in view of Shaughnessy or Jubin-Tornow or the '511 patent, discloses "enabl[ing] each of a plurality of customers to monitor at least one remote device via a wide area network."

"providing an organization access to the wireless communication network" (claim 27).

62. Jubin-Tornow discloses "providing an organization access to the wireless communication network," in part, as follows:

a. As shown in FIG. 4, reproduced above at paragraph 10, Jubin-Tornow discloses a host connected to the wide area network and the PRNET. The host may be an organization. (Katz Decl. Ex. A (at 55).)

63. Canada discloses "providing an organization access to the wireless communication network," in part, as follows:

a. Plaintiffs' admit that Canada discloses an "organization". (Prange Decl. Ex. G (attachment at 12).)

64. Canada in view of Jubin-Tornow discloses "providing an organization access to the wireless communication network," in part, by disclosing the wireless communication network, as detailed above. .

65. Canada and Shaughnessy would be combined so that the system of Canada could be connected to one or more additional manufacturing plants or to a server over a wide area network. (Prange Decl. Ex. F (Dec. on Appeal at 2-512 through 2-513.)

66. Canada and Shaughnessy would be combined to allow for increase scalability of the system. (Prange Decl. Ex. F (Examiner's Answer at 2-458).)

67. Canada and Shaughnessy would be combine to provide multiple communications within the network (Prange Decl. Ex. F (Examiner's Answer at 2-459).)

68. Canada and Jubin-Tornow would be combine to extend the range of the machine monitors of Canada without the need for standalone repeaters. (Prange Decl. Ex. F (Appeal Br. at 2-396).)

69. Canada would be modified so the function of the repeater is performed by the machine monitor. This modification would be made to extend the range of the machine monitors of Canada without the need for standalone repeaters. (*Id*.)

70. Defendants incorporate herein by reference the undisputed statements of fact set forth in Defendants' Statement of Undisputed Facts in support of their Motion for Summary Judgment of Noninfringement.

Date: April 17, 2009

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ATTORNEYS FOR DEFENDANTS THE TORO COMPANY, JLH LABS, LLC, AND JASON HILL

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

SIPCO LLC; and ADVANCED SENSOR TECHNOLOGY, INC., Plaintiffs, vs. THE TORO COMPANY, JLH LABS, LLC, and JASON HILL, Defendant.	Civil Action No. 08-CV-00505-TJS

CERTIFICATE OF SERVICE

I hereby certify that on the 17th day of April, 2009, I caused a true and correct copy of the following documents:

1. Defendants' Statement of Undisputed Facts in Support of Their Motion for Summary Judgment of Noninfringement (under seal);
2. Defendants' Memorandum of Law in Support of Their Motion for Summary Judgment of Noninfringement (under seal);
3. Defendants' Statement of Undisputed Facts In Support of Motion for Summary Judgment of Invalidity (under seal);
4. Defendants' Memorandum in Support of Its Motion for Summary Judgment of Invalidity (under seal);
5. Defendants' Statement of Undisputed Facts in Support of Motion for Summary Judgment Relating to Advanced Sensor Technology, Inc.'s Trade Secret Claims (under seal);
6. Defendants' Memorandum of Law in Support of Their Motion for Summary Judgment to Dismiss Advanced Sensor Technology, Inc.'s Trade Secret Claims (under seal);
7. Exhibits attached to Declaration of David A. Prange (exhibits H, I, J, L, O, R, T, 31, 32, 25, 26, 40, 41, 44, 47, 49, 50, 51, 60, 61, 62, 69, 70, 71, 77, and 88 under seal);
8. Exhibit A to Declaration of Jason L. Hill (under seal);
9. Exhibits A and B to Declaration of Randy H. Katz;
10. Exhibit A to Declaration of Philip A. Levis (under seal).

were submitted to the Clerk of Court via hand delivery.

I further certify that on the 17th day of April, 2009, I caused a true and correct copy of the following documents:

1. Defendants' Motion for Summary Judgment of Noninfringement;
2. Defendants' Statement of Undisputed Facts in Support of Their Motion for Summary Judgment of Noninfringement;
3. Defendants' Memorandum of Law in Support of Their Motion for Summary Judgment of Noninfringement;
4. (Proposed) Order;
5. Defendants' Motion for Summary Judgment of Invalidity**;**
6. Defendants' Statement of Undisputed Facts In Support of Motion for Summary Judgment of Invalidity;
7. Defendants' Memorandum in Support of Its Motion for Summary Judgment on Invalidity;
8. (Proposed) Order;
9. Defendants' Motion for Summary Judgment to Dismiss Advanced Sensor Technology, Inc.'s Trade Secret Claims;
10. Defendants' Statement of Undisputed Facts in Support of Motion for Summary Judgment Relating to Advanced Sensor Technology, Inc.'s Trade Secret Claims;
11. Defendants' Memorandum of Law in Support of Their Motion for Summary Judgment to Dismiss Advanced Sensor Technology, Inc.'s Trade Secret Claims;
12. (Proposed) Order;
13. Declaration of David A. Prange, and the Exhibits attached thereto (some Exhibits filed under seal);
14. Declaration of Jason L. Hill, and the Exhibit attached thereto (Exhibit filed under seal);
15. Declaration of Randy H. Katz and the exhibits attached thereto and
16. Declaration of Philip A. Levis and the exhibits attached thereto (Exhibits filed under seal).

be served upon the below listed counsel via Federal Express:

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I further certify that on the 17th day of April, 2009, I caused to be served upon the within named counsel, by via email as follows:

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where the following documents were sent via email:

1. Defendants' Statement of Undisputed Facts in Support of Their Motion for Summary Judgment of Noninfringement;
2. Defendants' Memorandum of Law in Support of Their Motion for Summary Judgment of Noninfringement;
3. Defendants' Statement of Undisputed Facts In Support of Motion for Summary Judgment of Invalidity;
4. Defendants' Memorandum in Support of Its Motion for Summary Judgment on Invalidity;
5. Defendants' Statement of Undisputed Facts in Support of Motion for Summary Judgment Relating to Advanced Sensor Technology, Inc.'s Trade Secret Claims; and
6. Defendants' Memorandum of Law in Support of Their Motion for Summary Judgment to Dismiss Advanced Sensor Technology, Inc.'s Trade Secret Claims.

s/ David J. Wolfsohn
David J. Wolfsohn